

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE EASTERN DISTRICT OF TEXAS
3 MARSHALL DIVISION

4 SOLAS OLED LTD.,) (CIVIL ACTION NO.
5 PLAINTIFF,) (2:19-CV-152-JRG
6 VS.) (
7 SAMSUNG DISPLAY CO., LTD.,) (
8 SAMSUNG ELECTRONICS CO.,) (MARSHALL, TEXAS
9 LTD., SAMSUNG ELECTRONICS) (MARCH 2, 2021
10 AMERICA, INC.,) (8:22 A.M. - 6:12 P.M.
11 DEFENDANTS.) (
12

13 TRANSCRIPT OF JURY TRIAL

14 BEFORE THE HONORABLE JUDGE RODNEY GILSTRAP

15 UNITED STATES CHIEF DISTRICT JUDGE

16

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24 (Proceedings recorded by mechanical stenography, transcript
produced on a CAT system.)

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08:19:18 1 P R O C E E D I N G S

08:19:18 2 (Jury out.)

08:19:19 3 COURT SECURITY OFFICER: All rise.

08:19:20 4 THE COURT: Be seated, please.

08:22:23 5 Are the parties prepared to read into the record

08:22:31 6 those items from the list of pre-admitted exhibits that

08:22:33 7 were used during yesterday's portion of the trial? If so,

08:22:37 8 please go to the podium and make your offerings.

08:22:40 9 MS. HENRY: Plaintiff is ready, Your Honor.

08:22:42 10 THE COURT: Please proceed.

08:22:43 11 MS. HENRY: Plaintiff reads into the record

08:22:47 12 PTX-549, PTX-550, PTX-742, and PTX-745.

08:22:54 13 THE COURT: Any objection from Defendants to that

08:22:58 14 rendition?

08:22:59 15 MR. VALENCIA: No, Your Honor. Dan Valencia for

08:23:02 16 the Defendants. We do have PTX-642, as well.

08:23:07 17 MS. HENRY: Your Honor, that was one that was

08:23:09 18 offered by Defendants, so I was going to let them read it

08:23:12 19 into the record.

08:23:13 20 THE COURT: All right. Let me hear a rendition

08:23:15 21 from Defendants as to what they used during yesterday's

08:23:17 22 portion of the trial.

08:23:19 23 MR. VALENCIA: Good morning, Your Honor. We've

08:23:20 24 got. I think it's DTX-642, which was used with Mr. Padian

08:23:25 25 yesterday.

08:23:25 1 THE COURT: Anything further?

08:23:28 2 MR. VALENCIA: No, Your Honor.

08:23:28 3 THE COURT: Also, the Plaintiff's exhibit that was

08:23:30 4 mentioned? Or did I misunderstand?

08:23:39 5 MR. VALENCIA: No, Your Honor. I -- with the

08:23:41 6 Court's indulgence for a minute.

08:23:47 7 MS. HENRY: If that's what you say, I'm sure

08:23:49 8 that's right.

08:23:50 9 MR. VALENCIA: Your Honor, it is DTX-642.

08:23:52 10 THE COURT: Okay.

08:23:53 11 MR. VALENCIA: And nothing further beyond that.

08:23:55 12 THE COURT: All right. Then no objection from

08:23:57 13 Plaintiff, Ms. Henry?

08:23:59 14 MS. HENRY: She's telling you that's not right.

08:24:04 15 THE COURT: Hang on.

08:24:04 16 Mr. Valencia, consult with your co-counsel.

08:24:07 17 MR. VALENCIA: Thank you, Your Honor. Will do.

08:24:28 18 Thank you for your patience, Your Honor. It

08:24:30 19 actually is PTX-642, I misspoke.

08:24:34 20 THE COURT: All right. Anything further from

08:24:36 21 Defendants?

08:24:37 22 MR. VALENCIA: No, Your Honor, just the issue we

08:24:38 23 talked about this morning.

08:24:39 24 THE COURT: And I'll take that up in a minute.

08:24:41 25 MR. VALENCIA: Thank you.

08:24:42 1 THE COURT: And I gather Plaintiff has no
08:24:45 2 objection to Defendants' rendition, Ms. Henry.

08:24:47 3 MS. HENRY: No objection, Your Honor.

08:24:49 4 THE COURT: All right. Thank you.

08:24:50 5 Mr. Valencia, we'll transition to what you alluded
08:24:53 6 to. There was a request in chambers this morning for
08:24:56 7 Defendants to make a notation in the record regarding the
08:24:58 8 preservation of an exhibit-related issue.

08:25:01 9 Please proceed.

08:25:02 10 MR. VALENCIA: Thank you, Your Honor.

08:25:02 11 So in view of the Court's denial of Defendants'
08:25:05 12 Daubert motion to exclude the opinions of Stephen Dell,
08:25:08 13 that's Docket No. 138, and Defendants' motions in limine
08:25:12 14 relating to non-comparable license agreements, that's
08:25:16 15 Docket No. -- excuse me, 224, both of which the Court
08:25:20 16 denied in its order in Docket No. 279, Defendants would
08:25:24 17 like to preserve their objections to the following
08:25:26 18 documents on Plaintiff's exhibit list. PTX-506, 509, 517,
08:25:33 19 534, 535, 536, 537, 539, 540, 541, 542, 543, 645, 646, 647,
08:25:48 20 648, 649, 743, 744 for the reasons set forth in Defendants'
08:25:55 21 briefings. And, again, those are all PTX exhibits.

08:25:59 22 THE COURT: Duly noted.

08:26:03 23 MR. VALENCIA: Thank you, Your Honor.

08:26:05 24 THE COURT: All right. Is Plaintiff prepared to
08:26:07 25 call their next witness?

08:26:09 1 MS. FAIR: Yes, Your Honor.

08:26:09 2 THE COURT: All right. Let's bring in the jury,

08:26:11 3 please, Mr. Johnston.

08:27:00 4 COURT SECURITY OFFICER: All rise.

08:27:03 5 (Jury in.)

08:27:20 6 THE COURT: Please be seated.

08:28:22 7 Welcome back, ladies and gentlemen of the jury.

08:28:29 8 We'll proceed with the next Plaintiff's witness.

08:28:32 9 Plaintiff, call your next witness.

08:28:34 10 MS. FAIR: Your Honor, the Plaintiff calls

08:28:38 11 Mr. Jalil Shaikh.

08:28:40 12 THE COURT: All right. The witness will come

08:28:42 13 forward and be sworn, please.

08:28:54 14 (Witness sworn.)

08:28:59 15 THE COURT: Please come around, sir. Have a seat

08:29:04 16 here at the witness stand.

08:29:08 17 There's water there if you'd like to pour some,

08:29:18 18 and if you'll adjust the microphone so that it's at a good

08:29:22 19 position, then we'll proceed.

08:29:28 20 All right. Counsel, you may proceed with your

08:29:34 21 direct examination of the witness.

08:29:36 22 MS. FAIR: Thank you, Your Honor. And I realized

08:29:39 23 yesterday I forgot to introduce myself. I'm Andrea Fair.

08:29:42 24 I'm partners with Johnny Ward out in Longview -- over in

08:29:47 25 Longview, if you will.

08:29:47 1 JALIL SHAIKH, PLAINTIFF'S WITNESS, SWORN

08:29:47 2 DIRECT EXAMINATION

08:29:47 3 BY MS. FAIR:

08:29:47 4 Q. Would you introduce yourself to the jury, please?

08:29:50 5 A. My name is Jalil Shaikh.

08:29:51 6 Q. And what do you have to do with this case?

08:29:54 7 A. I'm one of the co-inventors in this patent '311.

08:29:59 8 Q. Have you ever testified in front of a jury before?

08:30:01 9 A. No, I have not.

08:30:03 10 Q. Are you a little nervous?

08:30:05 11 A. Yes, I am.

08:30:06 12 Q. I want to talk to you a little bit about the patent and

08:30:09 13 your invention in a minute, but, first, could you tell us a

08:30:13 14 little bit about yourself? What do you do for a living?

08:30:17 15 A. I'm engineer by profession. I worked in the computer

08:30:23 16 industry for about 35 years, computer chip industry, just

08:30:27 17 small electronics which is the brains of computers, cell

08:30:32 18 phones and so on.

08:30:32 19 THE COURT: Let me stop just a minute.

08:30:35 20 Mr. Shaikh, pull the microphone a little closer to you,

08:30:38 21 sir. It's a big courtroom. I'd like to make sure

08:30:41 22 everybody even in the back row is able to hear you.

08:30:44 23 THE WITNESS: Okay.

08:30:45 24 THE COURT: Thank you. Let's proceed.

08:30:48 25 Q. (By Ms. Fair) And are you still working?

08:30:50 1 A. I stopped working last year to take care of my mother
08:30:54 2 and wife.

08:30:55 3 Q. Do you and your wife have children?

08:30:56 4 A. Yes, we have four children.

08:30:58 5 Q. Tell us about them. How old are they? What do they
08:31:01 6 do?

08:31:01 7 A. My eldest one is 35 years old, daughter. She has MBA.

08:31:06 8 And my second daughter is 31 years old. She has Master's

08:31:16 9 in healthcare, occupational therapy. And my son is 24 --

08:31:20 10 28 years old. He is engineer. He works for Johnson &

08:31:24 11 Johnson. My youngest one is 26 years old, daughter. She

08:31:30 12 finished her Bachelor's, and she's trying to decide what to

08:31:33 13 do next.

08:31:33 14 Q. Now, you don't sound like you're from around here. Can
08:31:40 15 you tell us where you're from?

08:31:41 16 A. I was born and raised in Pakistan.

08:31:45 17 Q. When did you come to the U.S.?

08:31:46 18 A. 1981.

08:31:47 19 Q. What brought you here?

08:31:48 20 A. I wanted to do my Master's in electrical engineering.

08:31:55 21 That's why I came to U.S.

08:31:56 22 Q. What was your plan when you came to the U.S.?

08:32:00 23 A. I bought one-way ticket to come to U.S. to do my

08:32:08 24 Master's in electrical engineering.

08:32:10 25 Q. Why is it that you wanted to come to the U.S. to

08:32:15 1 further your education?

08:32:16 2 A. Well, at that time, early '80s, U.S. was the best place

08:32:24 3 to do engineering, and especially electrical engineering.

08:32:28 4 So I was very motivated to come to U.S.

08:32:31 5 Q. Where did you end up going to school here?

08:32:33 6 A. I went to Rutgers, New Jersey.

08:32:38 7 Q. And what degree were you working on?

08:32:40 8 A. Master's in electrical engineering.

08:32:42 9 Q. So I take it you'd studied some electrical engineering

08:32:47 10 before?

08:32:47 11 A. Yes. I have Bachelor's in electrical engineering from

08:32:54 12 Pakistan.

08:32:54 13 Q. Was it intimidating to have studied electrical

08:32:58 14 engineering in Pakistan, come to a brand new country to

08:33:02 15 continue your studies?

08:33:03 16 A. Yes, it was. My books -- engineering books in Pakistan

08:33:09 17 were in English, so that was okay. But coming thousands of

08:33:14 18 miles away, away from family and all, that was hard.

08:33:20 19 Q. When did you graduate from Rutgers with your Master's

08:33:25 20 in electrical engineering?

08:33:26 21 A. 1983.

08:33:27 22 Q. Where did you go from there?

08:33:28 23 A. I went to California, San Francisco Bay area to work

08:33:37 24 for company -- National Semiconductor, which is now part of

08:33:41 25 Texas Instruments.

08:33:43 1 Q. And they do the chips like it was you mentioned a
08:33:46 2 little bit earlier, you had spent your career working on?
08:33:49 3 A. That is correct. They worked on small semiconductor
08:33:55 4 chips which were in different applications like computers,
08:33:59 5 cell phone, automotive, appliances.
08:34:02 6 Q. What did you learn while you were at National?
08:34:05 7 A. Well, I learned a lot of things. As an example,
08:34:14 8 design, manufacturing, marketing, new product definition,
08:34:19 9 customer presentations, and several basic things. And I
08:34:24 10 also did my MBA while I was working at National
08:34:29 11 Semiconductor.
08:34:29 12 Q. The '311 patent that we're talking about in this case
08:34:33 13 is the touch sensor patent. When did you start working on
08:34:37 14 touch sensors?
08:34:37 15 A. Well, around 2007, I was hired by company Validity
08:34:49 16 Sensors as a CEO, which was in fingerprint reader
08:34:58 17 technology. That's when I got introduced to touch sensor
08:35:01 18 area.
08:35:01 19 Q. And you said fingerprint reader technology. Can you
08:35:04 20 tell us what it was you were working on at Validity
08:35:09 21 Sensors?
08:35:09 22 A. So, as I said, it is a fingerprint reader, meaning to
08:35:13 23 recognize that it is you. They were part of -- actually
08:35:18 24 even Samsung phone, HP computers. It was identification to
08:35:24 25 make sure it is you.

08:35:31 1 Q. What ended up happening to Validity Sensors?

08:35:36 2 A. Well, eventually that company was sold to another

08:35:40 3 company after I left.

08:35:40 4 Q. Where were you when you came up with the invention with

08:35:43 5 your co-inventors on the '311 patent?

08:35:44 6 A. I was at Atmel.

08:35:48 7 Q. How did you end up at Atmel?

08:35:50 8 A. Well, when I was at Validity Sensors, company was a

08:36:03 9 turnaround for me. And company was making very good

08:36:06 10 progress in technology and customer base and so on. I was

08:36:10 11 able to attract multiple buyers for that business, and one

08:36:17 12 of the offer was from Mr. Steven Laub, who was CEO of Atmel

08:36:25 13 at that time.

08:36:25 14 Q. So when did he invite you to join Atmel?

08:36:29 15 A. It was late 2009 when we interacted, and I started at

08:36:35 16 Atmel February 1st, 2010.

08:36:38 17 Q. What was it that you were going to be working on when

08:36:41 18 you joined Atmel?

08:36:42 19 A. Well, it was a very secretive project, and I was not

08:36:50 20 even told what I'll be working on. Only thing I was told

08:36:56 21 is, hey, Jalil, it fits your background of taking the

08:37:01 22 concept and commercializing it, so we want you to come

08:37:03 23 over.

08:37:03 24 Q. Why would you go work somewhere if you don't even know

08:37:06 25 what you're going to be working on?

08:37:08 1 A. Well, since I interacted with Mr. Steven Laub before
08:37:11 2 when I was CEO of Validity Sensors, I was very comfortable
08:37:18 3 with him. We became good friends. So I was sure it would
08:37:22 4 be something good for me.

08:37:23 5 Q. What did you learn you would be working on once you got
08:37:28 6 hired?

08:37:28 7 A. Once I got hired, it was secret project even within
08:37:32 8 Atmel. Very few people knew what was going on, and I
08:37:36 9 learned that I would be working on a new concept, which is
08:37:41 10 touch sensors based on metal.

08:37:45 11 Q. What type of company was Atmel that it was so
08:37:51 12 confidential and top secret that you would be starting a
08:37:55 13 touch sensor business for them?

08:37:56 14 A. Well, Atmel was also, like I mentioned previously, a
08:38:01 15 National -- like National Semiconductor. They were making
08:38:05 16 small computer chips to, again, power cell phone,
08:38:11 17 computers, and so on.

08:38:12 18 But they also had a very large business in touch
08:38:20 19 controllers.

08:38:21 20 Q. And how does a touch controller relate to a touch
08:38:25 21 sensor?

08:38:25 22 A. Well, we are all familiar with cell phones. So when we
08:38:33 23 touch on cell phone, we are touching a touch sensor, which
08:38:37 24 is behind the glass, and that is a touch sensor.

08:38:44 25 And once we touch, the signal goes to the

08:38:48 1 controller, which is behind -- underneath the display or
08:38:54 2 some other place, which processes the information,
08:38:56 3 depending on where you touch the touch sensor. So touch
08:39:02 4 sensor signal goes to the computer chip, which is called
08:39:05 5 touch controller.

08:39:06 6 Q. How does the touch sensor itself work?

08:39:08 7 A. Well, in a very, very simplistic way. There are
08:39:18 8 vertical lines and there are horizontal lines, and wherever
08:39:23 9 they crisscross, it -- because of the electricity forced
08:39:30 10 into the wires, it holds a charge.

08:39:35 11 And when we touch with our finger, that charge
08:39:43 12 disappears through our body to the ground, and the touch
08:39:47 13 controller recognizes that location, and says, okay, I need
08:39:50 14 to do something about it.

08:39:51 15 Q. So you're saying that when you touch a touch sensor,
08:39:54 16 the electricity comes into your finger and runs through you
08:39:58 17 to the ground?

08:39:58 18 A. Yes, that is correct.

08:39:59 19 Q. How is it that we don't get shocked when we touch touch
08:40:03 20 sensors?

08:40:03 21 A. It's very small electricity, very small.

08:40:07 22 Q. What are the -- what makes up a touch sensor? You said
08:40:11 23 there's these crisscross lines. How are they put together?

08:40:17 24 A. Yeah. So, as I mentioned, there are X and Y lines, and
08:40:24 25 they -- the intersections on how you make those different

08:40:30 1 technologies. What I was working on was a plastic
08:40:34 2 substrate -- I'm going to continue to use very simple
08:40:37 3 words -- plastic substrate, and we printed X line --
08:40:41 4 horizontal lines and vertical lines on both sides of that
08:40:45 5 phone, which created that capacitance when the computer
08:40:52 6 chip pushed the electricity to those intersections.
08:40:56 7 Q. Can you remind us, in 2010, what was the touchscreen
08:41:03 8 industry like?
08:41:04 9 A. Well, it was very early on of touch technology. I
08:41:10 10 remember Apple introduced their first phone around 2007 or
08:41:13 11 so. Cell phone screens were very, very small. And that
08:41:23 12 took off the capacitive touch technology, and the race was
08:41:27 13 on to add more capacity and so on. So it was very infancy.
08:41:33 14 Q. When you're saying "it was infancy," you're meaning --
08:41:36 15 I mean, we had track pads on computers and laptops. What
08:41:40 16 was different about the touch sensors, the touchscreens
08:41:46 17 that were going on in 2007, 2010 and onward?
08:41:48 18 A. Well, track pads and all that, they don't require the
08:41:51 19 very clear plastic film. They can be black or white or
08:41:55 20 whatever. Doesn't matter. But if it has to be on a
08:41:58 21 computer, on a cell phone display, it has to be very clear.
08:42:03 22 Q. So what was it that was being used in the industry at
08:42:07 23 the time when you started working on the touch sensor
08:42:11 24 business at Atmel for the crisscross lines that would run
08:42:16 25 the current through it?

08:42:18 1 A. Well, even at that time, yes, it was a clear plastic
08:42:22 2 film or similar thing. But the lines, conductive lines,
08:42:26 3 horizontal/vertical lines were made of indium tin oxide,
08:42:33 4 which is see-through material. It's some kind of paste you
08:42:36 5 paste on that, and those were conductive lines.

08:42:39 6 Q. And what material -- you told us when you joined Atmel
08:42:43 7 they were working with metal. Can you explain what the
08:42:47 8 metal was they were working with at Atmel to run the
08:42:50 9 electrical current through for the touch sensors?

08:42:52 10 A. Atmel was working -- the technology was, they were
08:42:56 11 working with copper --

08:42:58 12 THE COURT: Just a minute. Just a minute.

08:43:00 13 Somebody's cell phone ringing in the middle of the
08:43:02 14 trial? I heard a cell phone. Whose was it?

08:43:20 15 Is somebody going to tell me?

08:43:25 16 I don't think I dreamed it. All right. There'll
08:43:32 17 be no further disruptions. If that happens again, I'll
08:43:36 18 take appropriate action. If you've got a device with you,
08:43:39 19 make sure it's silenced.

08:43:41 20 As you heard me tell the jury yesterday, they
08:43:43 21 don't get to bring their cell phones in the courtroom. So
08:43:47 22 if you're going to take the advantage that they don't have,
08:43:50 23 you're going to have to make sure it's silent. I'll have
08:43:52 24 no more such interruptions.

08:43:54 25 All right. Counsel, please continue.

08:43:56 1 MS. FAIR: Thank you, Your Honor.

08:43:57 2 Q. (By Ms. Fair) Mr. Shaikh, you were telling us about

08:44:00 3 the metal that Atmel was using to run the current through

08:44:03 4 as compared to the clear indium tin oxide. Could you tell

08:44:07 5 us what Atmel was working with?

08:44:09 6 A. So Atmel was working at that time with, again, clear

08:44:12 7 plastic film, and they were working with copper lines,

08:44:15 8 horizontal and vertical lines printed on both sides.

08:44:20 9 Q. You're telling this jury that you were putting copper

08:44:23 10 in front of a display and expecting someone to see through

08:44:26 11 it?

08:44:27 12 A. Yes, that was a common reaction I got from the

08:44:32 13 customers in the very beginning. But the lines were so

08:44:37 14 thin, they were about 20 times narrower and thinner than

08:44:44 15 human hair so that we cannot see with naked eye.

08:44:47 16 Q. Why was it that Atmel was looking to work with metal,

08:44:52 17 copper, metal mesh I think you had said, instead of the

08:44:57 18 clear indium tin oxide?

08:45:00 19 A. Well, there were -- there are many, many advantages

08:45:04 20 against indium tin oxide. One very important one -- there

08:45:09 21 are several -- I will start from the first one -- is that

08:45:13 22 indium tin oxide is very high resistance, meaning you have

08:45:18 23 to push lot of power or the computer chip has to push lot

08:45:23 24 of force to move the electrons into indium tin oxide.

08:45:29 25 Whereas a copper, you don't have to put so much pressure

08:45:32 1 and force or voltage to push the electrons. So that made
08:45:37 2 it very, very efficient.

08:45:40 3 To give you a reference, it was 10 times --

08:45:46 4 probably more -- 10 times better with copper.

08:45:50 5 Q. What advantages are there when you're using a material
08:45:53 6 that has a lower resistance so you can push the electrical
08:45:57 7 current through it faster?

08:45:59 8 A. Well, the first -- the most important thing I will say
08:46:05 9 as a computer user, also a cell phone user, let's think
08:46:10 10 about it that we are using a 10-year old computer versus
08:46:14 11 today's computer. When you're working, how slow it is
08:46:18 12 booting up and how slow it is doing things, it is same
08:46:22 13 thing.

08:46:22 14 With indium tin oxide, you touch, and it is a slow
08:46:28 15 response. With copper, since it is so much faster,
08:46:34 16 electrons move so much faster, reaction is fast.

08:46:38 17 Q. You said there were other advantages to the metal mesh
08:46:42 18 over the indium tin oxide. Can you tell us about that?

08:46:44 19 A. Sure. So once we had this performance that you can
08:46:47 20 touch it very fast and so on, the other big advantage was
08:46:52 21 my customers were pushing me that, look, there is a big
08:46:56 22 border around the display. How can you help us to do it
08:47:00 23 narrow and narrow and narrow?

08:47:01 24 And so since we printed the whole thing with X and
08:47:08 25 Y lines and those connecting lines going to the computer

08:47:11 1 chip, at same time, as opposed to indium tin oxide, which
08:47:17 2 had to have some connectors, there was no way they could
08:47:22 3 compete with us to reduce the borders so that the display,
08:47:29 4 the body visual, is the maximum.

08:47:30 5 Q. If metal mesh has these advantages, why didn't the
08:47:34 6 industry just switch from indium tin oxide to metal mesh?

08:47:37 7 A. I wish it was that easy, but it was not.

08:47:44 8 One of the big reasons was that we wanted to put
08:47:48 9 copper lines so that they are very, very, very, very thin.
08:47:53 10 And sticking very narrow lines on a plastic film on both
08:48:01 11 sides was very, very difficult, and that's where -- was the
08:48:05 12 differentiation.

08:48:06 13 Q. Can you -- what makes it difficult? What happens when
08:48:09 14 you try and put these really thin metal lines on a clear
08:48:14 15 surface?

08:48:14 16 A. Well, when you put those narrow lines on the film, then
08:48:21 17 the concern is during the downstream manufacturing process
08:48:26 18 and so on, the copper lines will just rub off, and they
08:48:30 19 won't stick and stay on the plastic film.

08:48:34 20 Q. And were you able to figure out a way to get the copper
08:48:37 21 lines to stick and not have this mesh rub-off problem?

08:48:42 22 A. That is very correct. Yes, we had to figure it out,
08:48:45 23 how we could hold those thin copper lines so that they
08:48:48 24 don't rub off, yes.

08:48:50 25 Q. And so tell us how you and your supplier were able to

08:48:53 1 figure out how to get those metal lines to stick?

08:48:56 2 A. Again, in a very simplistic way, there was a glue which

08:49:03 3 we used, chemical glue, which we were able to work and

08:49:07 4 perfect with our partner so that thin copper lines stay.

08:49:13 5 Q. Were others in the industry trying to make this switch

08:49:16 6 from indium tin oxide to metal mesh?

08:49:18 7 A. That is correct.

08:49:18 8 Q. Can you tell us about what you're aware of from being

08:49:22 9 in the industry about that?

08:49:22 10 A. Well, I know for sure there was a very large company by

08:49:28 11 the name 3M.

08:49:31 12 Q. The Post-it note company?

08:49:33 13 A. Excuse me?

08:49:33 14 Q. The Post-it note company?

08:49:36 15 A. Yes, the Post-it note company, yes.

08:49:38 16 Q. What were they working?

08:49:39 17 A. Well, they were also working on metal mesh. And there

08:49:42 18 was another Japanese company, Fuji Film, was working on

08:49:46 19 that. And 3M specifically was also -- I believe they were

08:49:51 20 working on same copper material. The problem they had was

08:49:55 21 they were printing on two films, just a copy of ITO-type of

08:50:04 22 technology.

08:50:05 23 But with copper, two films, they just don't work

08:50:08 24 because X and Y lines don't align properly. So they were

08:50:11 25 not able to go to production.

08:50:13 1 Q. What about Fuji Film? You told us you knew they were
08:50:16 2 also working on it. What were they working on?

08:50:18 3 A. So Fuji film, another Japanese company, so they were
08:50:24 4 work on metal, but they were working with silver as opposed
08:50:28 5 to copper. But silver had longevity issue, what I will
08:50:36 6 call reliability issue also when you use that for a while.

08:50:39 7 The lines were breaking.

08:50:41 8 Q. Why would the lines break with silver?

08:50:44 9 A. Well, let me put it this way, that the material
08:50:50 10 composition of copper is they are very tightly coupled.
08:50:59 11 The cells or small things that makes the metal, they are
08:51:03 12 very tightly coupled. They are much more strong --
08:51:06 13 stronger together, and silver is a little bit loose, or
08:51:10 14 they were -- it broke easily.

08:51:15 15 Q. Do you remember the time that you were sitting with
08:51:17 16 your co-inventors and you had the idea that led to this
08:51:20 17 invention?

08:51:20 18 A. Yes. That was a very important moment, and so I
08:51:27 19 remember that.

08:51:27 20 I was able to convince my technologist, Mr. Esat
08:51:36 21 Yilmaz, to move his family from U.K. to U.S. so that we can
08:51:42 22 be in same room, same office, and work together to develop
08:51:45 23 this technology.

08:51:46 24 It was right after new year that I took him to my
08:51:53 25 boss, Mr. Steven Laub's office, who is CEO of company, for

08:52:01 1 a pep talk and welcome and so on. That's where we were
08:52:06 2 talking about how we were going to create differentiation,
08:52:09 3 what is different about indium tin oxide versus copper and
08:52:12 4 so on, just like the questions you already asked me.

08:52:15 5 And right there and then I said, you know,
08:52:17 6 customer are pushing me for narrow border, narrow border.
08:52:21 7 I said, you know, we can do zero border, just bend it
08:52:25 8 around.

08:52:25 9 And, of course, Mr. Steven Laub being lawyer and I
08:52:27 10 being technologist and Mr. Esat Yilmaz being a circuit
08:52:32 11 design expert and so on, we pooled our resources and we
08:52:37 12 figured it out, how we can make it happen, how we can bend
08:52:41 13 it, how it will bring value to the industry. So it was
08:52:44 14 great moment.

08:52:45 15 Q. So you had your big idea moment in January 2011?

08:52:49 16 A. That is correct.

08:52:50 17 Q. Wouldn't it have been, you know, pretty obvious to just
08:52:59 18 take what's already flexible and wrap it around a display?

08:53:03 19 A. Well, it looks very simple now that we know it, but
08:53:09 20 there was a lot of work went behind it. My own 35 years of
08:53:14 21 knowledge. It is not easy to just bend it. The lines will
08:53:17 22 break and how do you improve the circuit? How do you
08:53:21 23 improve the quality? And how you continue to have the
08:53:25 24 capacitance which I talked about, when you bend, how much
08:53:28 25 you're going to bend. It was not that easy.

08:53:31 1 Q. So once you and your co-inventors came up with your
08:53:36 2 invention, with your idea, did you go out and market it to
08:53:40 3 your customers?

08:53:40 4 A. Absolutely.

08:53:44 5 MS. FAIR: Mr. Wietholter, can we please have
08:53:47 6 PTX-524?

08:53:52 7 Q. (By Ms. Fair) And, Mr. Yilmaz, [sic] is this one of
08:53:56 8 the presentations that you took to customers to show them
08:53:58 9 your invention?

08:53:59 10 A. Yes. I -- this is one of the -- yes, this is the
08:54:04 11 presentation that I took to customers, yes.

08:54:05 12 Q. Who were you presenting this to?

08:54:07 13 A. Well, any time I develop new technology, I create a
08:54:14 14 partnership with key customers, work back and forth, and it
08:54:18 15 was Nokia -- Nokia, Motorola, Samsung were the key partners
08:54:23 16 at that time.

08:54:24 17 Q. And what was the date of this presentation?

08:54:26 18 A. March '11.

08:54:31 19 MS. FAIR: If we could go to Page 2, please.

08:54:34 20 Q. (By Ms. Fair) At the top, we see FLM Technology
08:54:46 21 Advantages.

08:54:46 22 What is FLM?

08:54:48 23 A. FLM is the name we used to use at that time. That
08:54:56 24 means fine line metal.

08:54:59 25 Q. And can you tell us --

08:55:03 1 MS. FAIR: Mr. Wietholter, if we could see the
08:55:06 2 whole slide, please. Thank you.

08:55:07 3 Q. (By Ms. Fair) Could you tell us what advantages you
08:55:09 4 were touting to your customers that your invention offered?

08:55:13 5 A. Well, keeping indium tin oxide in mind, we wanted to
08:55:17 6 present to them that it is a flexible material, and it is
08:55:22 7 much thinner, and it is lighter, it is faster, and
08:55:28 8 manufacturing advantages, all kinds of advantages that
08:55:32 9 they're all listed here.

08:55:33 10 Q. And we see the slim or no border that it was --

08:55:36 11 A. Yes.

08:55:37 12 Q. -- that your customers were looking for?

08:55:40 13 A. That's where the whole thing started.

08:55:42 14 MS. FAIR: If we could go to Page 3, please,
08:55:44 15 Mr. Wietholter.

08:55:45 16 Q. (By Ms. Fair) At the top here, we see, sleek, edgeless
08:55:50 17 tablet design concept. What did you mean by edgeless?

08:55:53 18 A. Well, again, as I mentioned earlier, is that people
08:55:57 19 were pushing me that, okay, we need to bring the borders
08:56:01 20 narrow and narrow and narrow. And knowing the weakness of
08:56:04 21 indium tin oxide material and its technology, how it was
08:56:07 22 made and so on, we said, we'll give you zero border.

08:56:11 23 Q. How was it that your invention of wrapping around the
08:56:16 24 edges of a display gives you zero borders around the phone
08:56:20 25 or tablet?

08:56:20 1 A. Well, as I mentioned earlier, is that it is the
08:56:24 2 capability of the manufacturing. We print the whole thing,
08:56:30 3 including the lines and signal lines and metal mesh, which
08:56:34 4 is in the middle, everything at one time as opposed to ITO
08:56:38 5 which had connectors. You just cannot bend those, and they
08:56:43 6 will break. Again, I'm talking about at that time. And in
08:56:46 7 our case, it was very easy, so we were able to bend.

08:56:49 8 Q. So bending it around moves all of the lines that run
08:56:52 9 the current to the controller behind the display?

08:56:55 10 A. That is correct.

08:56:57 11 MS. FAIR: Mr. Wietholter, could we go to Page 17,
08:57:01 12 please?

08:57:02 13 Q. (By Ms. Fair) You told us earlier that the lines had
08:57:04 14 to be printed -- I forgot -- how much narrower than a human
08:57:10 15 hair?

08:57:10 16 A. About 20 times.

08:57:12 17 Q. And what is the measurements of the lines that you
08:57:14 18 figured out it needed to be?

08:57:16 19 A. You know, when we started, we were at about seven
08:57:21 20 micron wide, but my customers complained that they can see
08:57:25 21 it. So we kept on working and bringing it down narrow and
08:57:29 22 narrow. It was not until five micron that they said, okay,
08:57:34 23 we like it now.

08:57:35 24 Q. And what do we see from this timeline of when five
08:57:39 25 micron was something Atmel had in its manufacturing?

08:57:42 1 A. We were at five micron on -- in around March 2010.

08:57:47 2 Q. You gave this presentation to customers in March 2011.

08:57:50 3 Did you get to start working on a project with one of your

08:57:53 4 customers?

08:57:53 5 A. That is correct.

08:57:55 6 Q. Who was that?

08:57:55 7 A. Nokia.

08:57:57 8 Q. And can you tell us the name of the project?

08:58:00 9 A. Jolle.

08:58:02 10 MS. FAIR: Mr. Wietholter, can we please have

08:58:05 11 PTX-703?

08:58:06 12 Q. (By Ms. Fair) Can you tell us what we're looking at

08:58:12 13 here?

08:58:12 14 A. Yes. In our industry, this is called the price

08:58:17 15 quotation. And that happens when they have looked at my

08:58:23 16 technology, they are comfortable enough, and then they say,

08:58:26 17 okay, let's get a project started on this one. And it was

08:58:30 18 Nokia who named it Jolle.

08:58:32 19 So that was Jolle project we started working, and

08:58:35 20 we -- by that time, we had to have all the mechanical

08:58:38 21 specification from customer to us and back and forth, lots

08:58:41 22 of meeting and drawings and circuit design and all kind of

08:58:46 23 things. And then gave them the pricing.

08:58:48 24 Q. And when you say circuit design and the things that the

08:58:50 25 customer had to evaluate to get to the price quote, you had

08:58:54 1 a 3D model?

08:58:55 2 A. That is correct.

08:58:56 3 Q. When was it that you had this in order and had your
08:58:59 4 price quote provided to Nokia? What's the date here that
08:59:03 5 we see on the price quote?

08:59:04 6 A. It's May 18, 2011.

08:59:07 7 Q. Did you end up making and shipping to them sensors?

08:59:13 8 A. Yes. Once we received this price quote agreement, we
08:59:18 9 worked with them and agreed that, yes, we did manufacture
08:59:22 10 samples and shipped it to them.

08:59:24 11 MS. FAIR: Mr. Wietholter, can we please have

08:59:28 12 PTX-690?

08:59:29 13 Q. (By Ms. Fair) Can you tell us what we're looking at
08:59:32 14 here, Mr. Shaikh?

08:59:34 15 A. Yes. So this is what we call a project tracking
08:59:42 16 spreadsheet in which we list all the projects we were
08:59:46 17 working on, where the projects are, what the status is and
08:59:51 18 so on.

08:59:52 19 So if you look at Row No. 5 -- actually Row No. 3,
08:59:58 20 it shows -- 3A, actually, it shows what is a priority. And
09:00:12 21 you can see that Jolle was a number one priority in my
09:00:13 22 organization to get going.

09:00:14 23 Q. And if we scroll over to Column T, can you tell us when
09:00:26 24 it was that you shipped the samples that you mentioned
09:00:30 25 earlier that you provided to Nokia?

09:00:30 1 A. We shipped about 800 samples to them at their request
09:00:35 2 on July 8th, 2011.

09:00:36 3 Q. And -- I'm sorry.

09:00:38 4 A. July 2011.

09:00:39 5 Q. And these are working samples --

09:00:43 6 A. Yes.

09:00:43 7 Q. -- of touch sensors that you provided to Nokia?

09:00:45 8 A. That is correct.

09:00:46 9 Q. Did Nokia ever incorporate these touch sensors into a
09:00:51 10 product?

09:00:51 11 A. Well, when you say a product which was commercially
09:00:58 12 available in the market, no.

09:00:59 13 Q. What's your sense -- what's your understanding of why
09:01:04 14 that didn't happen?

09:01:06 15 MR. HASLAM: Objection.

09:01:07 16 THE COURT: State your objection.

09:01:08 17 MR. HASLAM: Lacks foundation, calls for hearsay.

09:01:12 18 THE COURT: What's your response, Ms. Fair?

09:01:21 19 MS. FAIR: He has an understanding of being in the
09:01:23 20 industry of what the different customers are and knows his
09:01:28 21 sense -- his understanding of why the project failed. He
09:01:31 22 doesn't know -- you know, what Nokia told him or didn't
09:01:33 23 tell him isn't part of what he's being asked, just his
09:01:37 24 understanding of why the project didn't proceed.

09:01:40 25 THE COURT: Mr. Haslam.

09:01:42 1 MR. HASLAM: I thought the question was, why did
09:01:44 2 Nokia not proceed. He's just going to say why he thinks
09:01:47 3 Nokia didn't proceed, but he's not going to testify about
09:01:50 4 why Nokia actually did.

09:01:51 5 THE COURT: He can answer from what knowledge he
09:01:53 6 has.

09:01:54 7 Restate the question on that basis, please.

09:01:56 8 Q. (By Ms. Fair) Could you tell us based on your
09:01:58 9 knowledge, your understanding of why the project didn't
09:02:00 10 proceed?

09:02:01 11 A. So it is my understanding that they looked at the
09:02:07 12 project, and Nokia was a very conservative company, and
09:02:13 13 they -- this was a big leap for them to create a technology
09:02:20 14 and product which is curved and so on. So I think it did
09:02:26 15 not fit their culture. That's number one.

09:02:30 16 Number two, it is my understanding at that time
09:02:33 17 they were having very tough competition from Samsung, and
09:02:37 18 they were having financial difficulties. So that's my
09:02:41 19 understanding.

09:02:41 20 Q. Did you and your co-inventors seek patent protection
09:02:45 21 for your invention?

09:02:46 22 A. That is correct.

09:02:49 23 MS. FAIR: Mr. Wietholter --

09:02:51 24 Q. (By Ms. Fair) Well, let me ask, why? Why did you seek
09:02:56 25 patent protection?

09:02:56 1 A. Well, you know, all three of us, we were very excited,
09:03:00 2 and I was very excited, and I wanted to have the patent
09:03:05 3 protection because I felt down the road people will need
09:03:10 4 this kind of technology.

09:03:12 5 It was a very common feeling that everybody would
09:03:15 6 like to have a smaller and smaller and smaller phone but
09:03:18 7 bigger and bigger screen. So there's no other way but to
09:03:21 8 wrap around these. And this was for things to come.

09:03:27 9 Q. And were y'all granted a patent?

09:03:29 10 A. Yes.

09:03:30 11 MS. FAIR: Your Honor, may I approach the witness?

09:03:35 12 THE COURT: You may.

09:03:49 13 Q. (By Ms. Fair) Mr. Shaikh, what are you holding in your
09:03:52 14 hands?

09:03:52 15 A. I'm holding my patent.

09:03:58 16 Q. What does having patents like this one mean to you?

09:04:03 17 A. Sorry.

09:04:24 18 I was very passionate to get higher education.

09:04:51 19 Due to financial difficulties, I was not able to do Ph.D.

09:05:03 20 This my Ph.D.

09:05:08 21 Sorry.

09:05:12 22 Q. Did Atmel continue to market your invention?

09:05:15 23 A. Yes.

09:05:16 24 Q. And you at Atmel continued to market your invention?

09:05:20 25 A. Yes.

09:05:22 1 MS. FAIR: Mr. Wietholter, could we please have
09:05:24 2 PTX-650?

09:05:27 3 Q. (By Ms. Fair) Is this another one of the presentations
09:05:29 4 that you were out showing your customers?

09:05:30 5 A. Yes.

09:05:31 6 Q. What is XSense?

09:05:35 7 A. In the very beginning when we started marketing of a
09:05:40 8 product, we said it is fine line metal, and we wanted to
09:05:46 9 have some marketing name, and so we came out with a
09:05:51 10 marketing name, which is called XSense, but basically the
09:05:54 11 same technology.

09:05:57 12 MS. FAIR: And, Mr. Wietholter, if we could go to
09:05:59 13 Page 5, please.

09:06:01 14 Q. (By Ms. Fair) What are these pictures that we're
09:06:05 15 seeing on Page 5?

09:06:07 16 A. You know, it is one thing to say, this is your concept,
09:06:14 17 and you present the concept that you can bend it and so on,
09:06:18 18 but next thing, there's nothing like having a real thing
09:06:22 19 available to show to customer. They can feel and touch and
09:06:27 20 say, that curved sensor does work.

09:06:30 21 So, yes, these are the working samples we had.

09:06:34 22 Q. And this is in 2012 was this particular presentation?

09:06:39 23 A. Yes.

09:06:39 24 Q. Is this what phones looked like in 2012?

09:06:42 25 A. Not at all.

09:06:46 1 Q. What did the displays in 2012 in commercially available
09:06:49 2 phones, what did they look like?

09:06:50 3 A. Well, at that time, they were just very -- just flat
09:06:55 4 phones and with big, wide borders around it.

09:07:00 5 Q. You mentioned earlier that you had showed your March
09:07:03 6 2011 presentation to Samsung. Did you continue to show
09:07:05 7 Samsung presentations like this?

09:07:07 8 A. Yes.

09:07:08 9 Q. Who all at Samsung were you telling about your
09:07:12 10 technology?

09:07:13 11 A. Well, I don't remember the names, but certainly at
09:07:20 12 which time I went over there, I met with different groups.
09:07:25 13 Two groups I remember for sure. One group was making the
09:07:30 14 phones, flat phones, we'll call it at this time. Then
09:07:34 15 there was another department which was working on flexible
09:07:40 16 display. So I used to go to both departments.

09:07:45 17 Q. What was your thought in showing your technology to
09:07:50 18 Samsung?

09:07:50 19 A. Well, you know, at that time, since Samsung was a
09:07:58 20 rising star and it was our biggest customer, so we wanted
09:08:02 21 them to go and adopt our touch sensor also which had all
09:08:08 22 kinds of advantages. So hoping to win their business.

09:08:13 23 Q. So they were one of Atmel's biggest customers for the
09:08:17 24 touch controller side of the business, and you were hoping
09:08:20 25 to complement that offering with the touch sensor?

09:08:26 1 A. That's correct.

09:08:27 2 Q. What was Samsung's reaction when you were over there
09:08:29 3 showing them your technology over the years?

09:08:31 4 A. So I believe I started going there early 2011, and I
09:08:41 5 was working with them for almost two years very
09:08:44 6 aggressively. And every time I went over there,
09:08:50 7 performance was they were just very, very happy.

09:08:53 8 In fact, the very first time I took the sensor
09:08:55 9 with me and so on, we just -- after the meeting we went to
09:09:01 10 the lab. They wanted to verify my claim that I had less
09:09:06 11 than 10 on -- the push, very, very low. And they
09:09:10 12 immediately went to the lab and tested. I was there. They
09:09:13 13 said, oh, you are wrong, it is even better than what you
09:09:17 14 were saying.

09:09:17 15 Q. How long did you continue meeting with Samsung and
09:09:23 16 showing them your technology?

09:09:24 17 A. Well, as I mentioning that I -- for about two years or
09:09:30 18 so, I was working very aggressively with them that it's a
09:09:34 19 great technology and so on. Yes, it was early stages and
09:09:38 20 so on.

09:09:39 21 And I went over there many times. I wanted to win
09:09:42 22 their business. I bent backward. They were big gorilla,
09:09:48 23 you know, anything they said, yes, sir, we will do this,
09:09:51 24 yes, sir, we'll do that. Give us the samples, okay. Oh,
09:09:54 25 well, you know, you have border problem, okay. We'll fix

09:09:57 1 it. Oh, you have, you know, a line with a problem, okay.

09:10:00 2 We'll fix that. Okay. You have reflection problem.

09:10:04 3 Anything they asked us to do, we did. And then also any

09:10:09 4 samples they asked us to make, we did.

09:10:14 5 But after two years, I said, you know, I have to

09:10:17 6 generate the revenue for my company and my people. I had

09:10:21 7 110 or people or so, employees. So I started slowing down

09:10:26 8 and let my sales people handle, and I changed my attention

09:10:29 9 to other customers.

09:10:30 10 Q. Do you remember when the last time was that you -- you

09:10:33 11 said you slowed down, but did you continue to go talk to

09:10:36 12 them about your technology?

09:10:38 13 A. That is correct. Most of the time, I sent my VP of

09:10:42 14 marketing over there.

09:10:43 15 Q. Do you remember when the last time was that you went

09:10:46 16 over to talk to Samsung about the technology? You or

09:10:51 17 someone at Atmel had gone over and talked to them?

09:10:53 18 A. Well, I remember personally going there last time.

09:10:57 19 That was 2016, when I was not part of Atmel at that time.

09:11:01 20 But that was 2016, I believe.

09:11:04 21 Q. Were you aware of what Samsung's goal was with their

09:11:11 22 touch sensors when you were meeting with them over these

09:11:14 23 years?

09:11:14 24 A. Well, to best of my knowledge, I felt that they

09:11:24 25 genuinely wanted to use my touch sensor and they wanted to

09:11:28 1 get more and more information and understanding how do we
09:11:30 2 fix moire, how do we do this. And we provided all the
09:11:35 3 information we could.

09:11:36 4 Q. Did you have an awareness that they were wanting to
09:11:40 5 bring their manufacturing in-house?

09:11:41 6 A. Not at all.

09:11:44 7 Q. Did you start working on a joint development project
09:11:48 8 with them, where you would help them get their
09:11:51 9 manufacturing up to speed?

09:11:52 10 A. Well, while we were -- a different group, which was
09:11:57 11 doing the flexible display technology development, yes, we
09:12:01 12 were working with them, and they asked us that if we can
09:12:07 13 license the technology and they can build it in part of
09:12:12 14 their flexible display. Very understandable.

09:12:15 15 And -- but I remember telling them that, look, you
09:12:18 16 know, in the very beginning, let me supply sensors to you.
09:12:22 17 In the meantime, we'll work with you, and it is very
09:12:25 18 understandable that if you make that part of your
09:12:28 19 manufacturing, your manufacturing cost will also go down.
09:12:32 20 As part of your manufacturing, when you bend it, the radius
09:12:35 21 will be very, very thin because when the thickness goes
09:12:39 22 down, you can bend it more. But I don't think we went to
09:12:46 23 the end to have or sign joint agreement.

09:12:50 24 Q. What ended up happening with Atmel's touch sensor
09:12:54 25 business?

09:12:54 1 A. Well, we were making very good progress with such
09:13:05 2 customers like HP and Dell and so on. We, in fact, had
09:13:10 3 design win with ASUS and so on.

09:13:11 4 I was told later on -- I was told at that time
09:13:14 5 that, well, you know, as much as we wanted to have a bigger
09:13:19 6 revenue and business, a touch controller and touch sensor
09:13:22 7 and one-stop shop, we want customer to come on or to us,
09:13:29 8 but the fundamental technology to make the chemicals and
09:13:34 9 chemistry and plastic and film and metal and all that is
09:13:38 10 very different from the computer chips. So it does not fit
09:13:44 11 together. So we would like to spin it off. So I said,
09:13:49 12 okay, then I started looking for new buyers.

09:13:51 13 Q. So as head of the touch sensor business unit, were you
09:13:55 14 able to find a buyer?

09:13:56 15 A. Yes, I did.

09:13:57 16 Q. Who did you sell to?

09:13:58 17 A. My fierce competitor, Uni-Pixel.

09:14:05 18 Q. What ended up happening -- well, when you sold to
09:14:10 19 Uni-Pixel, did it change the day-to-day operations for you
09:14:16 20 and the engineers?

09:14:17 21 A. Well, as I mentioned, Uni-Pixel was my competition, and
09:14:23 22 they were working on very similar technology. So it was
09:14:27 23 very easy for me to sell it to them because they knew the
09:14:30 24 market, they knew the good and bad and ugly, everything.
09:14:33 25 So it was easy to sell to them.

09:14:35 1 So their own technology was not working. So when
09:14:43 2 they looked at my technology, they said, well, you have
09:14:47 3 customers, you have purchase orders, and you are a
09:14:51 4 manufacturing, you have a factory, you're shipping for
09:14:54 5 revenue and so on.

09:14:57 6 So the second CEO, I recall, Mr. Jeff Hawthorne,
09:15:03 7 he had no fear with it. Their own technology looked very
09:15:05 8 old. He made a business decision. He decided to acquire
09:15:08 9 my business and shut down his own business.

09:15:11 10 Q. When Uni-Pixel acquired the Atmel business, do you know
09:15:14 11 whether they acquired the patents?

09:15:15 12 A. Yes, they licensed the patents.

09:15:19 13 Q. So the patents stayed with Atmel and the business went
09:15:22 14 to Uni-Pixel?

09:15:22 15 A. That is correct. The manufacturing, the employees,
09:15:27 16 factory, everything.

09:15:28 17 Q. What ended up happening with Uni-Pixel? What became of
09:15:33 18 them?

09:15:33 19 A. Well, I will take you back a little bit. When I was
09:15:41 20 Atmel and it was Uni-Pixel, both were working on similar
09:15:46 21 technology. At that time, this -- the executives of
09:15:52 22 Uni-Pixel told their investors that they have technology
09:15:58 23 all figured out, they have orders, and they're ready to
09:16:02 24 ship, lots of volume, the market is big and so on. And
09:16:10 25 that stock kept on growing very fast, and yet they were not

09:16:14 1 able to deliver, especially to their own microchip
09:16:21 2 investors, like Intel and Dell. And I was able to deliver,
09:16:26 3 "I" meaning Atmel, I was able to deliver.

09:16:29 4 And public found out because they were a public
09:16:31 5 company. So their stock crashed and CEO was removed. New
09:16:37 6 CEO came in. And the litigation -- SEC filed a suit
09:16:43 7 against the management. And that kept on going even after
09:16:48 8 they acquired Atmel.

09:16:49 9 Q. Mr. Shaikh, are you getting anything out of this case?

09:16:59 10 A. I'm being paid for my time only.

09:17:02 11 Q. How are you being compensated? How much?

09:17:05 12 A. I'm being paid \$330 an hour for the time I'm spending.

09:17:12 13 Q. Are you here for \$330 an hour? Is that why you came?

09:17:17 14 A. It is less than 5 percent of my income. No.

09:17:27 15 Q. Why is it that you're taking time away from your family
09:17:31 16 to be here?

09:17:31 17 A. This is the reason. I am here to protect my invention.

09:17:43 18 MS. FAIR: Pass the witness.

09:17:44 19 THE COURT: Cross-examination by the Defendants?

09:18:00 20 MR. HASLAM: Your Honor, can I hand the binders to
09:18:03 21 the witness?

09:18:03 22 THE COURT: You have leave to distribute binders.

09:18:33 23 Did opposing counsel get a binder?

09:18:39 24 MR. HASLAM: I apologize.

09:18:52 25 THE COURT: All right. Mr. Haslam, you may

09:18:53 1 proceed when you're ready.

09:18:53 2 CROSS-EXAMINATION

09:18:55 3 BY MR. HASLAM:

09:18:55 4 Q. Mr. Shaikh, you were talking in your direct examination
09:19:02 5 about your visits to Samsung, correct?

09:19:04 6 A. That is correct.

09:19:05 7 Q. And I believe you said -- you were asked a question,
09:19:11 8 did Samsung -- did you know whether Samsung was going to
09:19:16 9 take the project in-house?

09:19:18 10 THE COURT: Mr. Haslam, pull the mic a little
09:19:20 11 closer to you. You're a little taller than Ms. Fair. It
09:19:23 12 probably needs to be readjusted.

09:19:28 13 MR. HASLAM: Sometimes I forget that.

09:19:30 14 Q. (By Mr. Haslam) You were asked on direct examination
09:19:33 15 this question: Did you have an awareness that they were
09:19:38 16 waiting to -- wanting to bring the manufacturing in-house?

09:19:43 17 Your answer was: Not at all.

09:19:46 18 Do you recall that testimony?

09:19:47 19 A. That is correct.

09:19:48 20 Q. Okay. In fact, you knew that Samsung wanted to take
09:19:56 21 the manufacturing of the touch sensor in-house; isn't that
09:19:56 22 correct?

09:20:05 23 A. The cell phone team no flexible display people were
09:20:13 24 working with me at that time.

09:20:14 25 Q. That wasn't -- the display people told you that they

09:20:22 1 wanted to take the manufacturing of the touch sensor
09:20:26 2 in-house; isn't that correct?
09:20:29 3 A. That was very later on.
09:20:30 4 Q. They told you that they wanted to print the touch
09:20:36 5 sensor directly on the display, correct?
09:20:38 6 A. Partially, correct.
09:20:45 7 Q. They told you that they wanted to print the display
09:20:50 8 directly -- to print the touch sensor directly on the
09:20:53 9 display; is that true or not?
09:20:56 10 A. True.
09:21:04 11 Q. So the answer you gave on direct examination wasn't
09:21:09 12 quite right, correct?
09:21:10 13 MS. FAIR: Objection, Your Honor. That
09:21:12 14 mischaracterizes it. He explained that there were two
09:21:15 15 Samsungs. He knew one was --
09:21:16 16 THE COURT: Just a minute, Ms. Fair. I'm going to
09:21:19 17 allow the question. You can address it on redirect, if
09:21:23 18 necessary. We're not going to have a jury speech in front
09:21:26 19 of the jury. We're just going to go on with the next
09:21:29 20 question.
09:21:29 21 Q. (By Mr. Haslam) You want me to reask the question?
09:21:32 22 A. Please.
09:21:33 23 THE COURT: I want you to reask the question.
09:21:35 24 MR. HASLAM: That makes it mandatory.
09:21:38 25 Q. (By Mr. Haslam) Samsung Display, which you knew made

09:21:41 1 the displays that were used in the Samsung Galaxy phones,
09:21:45 2 correct?

09:21:45 3 A. Samsung flexible display wanted to bring manufacturing
09:21:53 4 in-house, to my knowledge.

09:21:55 5 Q. And they told you they wanted to print the touch sensor
09:21:58 6 directly on that display?

09:22:01 7 A. They told me very late that they would be doing that
09:22:07 8 in-house, and they wanted to license my technology.

09:22:10 9 Q. And they did not license your technology, did they?

09:22:15 10 A. That is correct.

09:22:16 11 Q. Because your technology embodied in the '311 patent
09:22:23 12 doesn't -- you print the touch sensor directly on the
09:22:26 13 display, does it?

09:22:28 14 MS. FAIR: Objection, Your Honor. That's expert
09:22:29 15 testimony of what the claims call for and whether or not it
09:22:32 16 requires the metal be printed on -- what surface it's
09:22:36 17 required to be printed on. That's for an expert to opine
09:22:40 18 on. It's comparing the claims to a product.

09:22:42 19 THE COURT: Well, he's the inventor of the '311.
09:22:47 20 He can answer as to what he understands. That's not going
09:22:52 21 to prevent other expert witnesses later in the trial from
09:22:56 22 offering their opinions.

09:22:57 23 I'll overrule your objection.

09:23:01 24 A. If you could please repeat the question.

09:23:04 25 Q. (By Mr. Haslam) Your invention, as claimed in the

09:23:08 1 claim that the jury has to consider, has a flexible touch
09:23:14 2 sensor, correct?

09:23:18 3 A. Correct.

09:23:18 4 Q. And that flexible touch sensor you put on a, as you
09:23:24 5 called it, a substrate or a support, correct?

09:23:27 6 A. Correct.

09:23:27 7 Q. Now, Atmel did not make displays, did it?

09:23:33 8 A. Did not.

09:23:33 9 Q. So you had this separate touch sensor and this separate
09:23:40 10 flexible substrate, and that's what you were selling to
09:23:46 11 different companies?

09:23:48 12 MS. FAIR: Objection, Your Honor. He's trying to
09:23:51 13 compare the specific embodiment that Atmel produced with
09:23:56 14 the Samsung product of how the metal is printed on the
09:23:59 15 substrate. Comparing how Atmel produced the product to how
09:24:06 16 Samsung makes its products is not the proper comparison.
09:24:08 17 The comparison is the claims to the accused products.

09:24:11 18 THE COURT: Overruled. This is the inventor. He
09:24:18 19 can answer questions as to how he understands his invention
09:24:22 20 worked. Overruled.

09:24:24 21 MR. HASLAM: Could we have Exhibit 3, Claim 7, put
09:24:28 22 up on the screen?

09:24:30 23 Q. (By Mr. Haslam) Now, do you know that this is the
09:24:41 24 claim that is being asserted in this case?

09:24:43 25 A. That is correct.

09:24:44 1 Q. Okay. And this is the claimed invention that this jury
09:24:49 2 is going to have to match to the accused Samsung products,
09:24:54 3 correct?

09:24:54 4 A. Understand.

09:24:56 5 Q. So let's talk about what the elements of the claim are.

09:25:01 6 The first thing is a substantially flexible
09:25:06 7 substrate, correct?

09:25:08 8 A. Correct.

09:25:08 9 Q. And you were using a plastic substrate called PET?

09:25:12 10 A. That is correct.

09:25:12 11 Q. The next element is a touch sensor, and I'm just going
09:25:19 12 to go through some of it to highlight it for the jury. If
09:25:24 13 you think you need to talk about more of what's in the
09:25:27 14 claim, feel free to do so.

09:25:28 15 The touch sensor was on the flexibly -- the
09:25:33 16 substantially flexible substrate, correct?

09:25:35 17 A. That is correct.

09:25:37 18 Q. And the touch sensor had a bunch of drive and sense
09:25:44 19 electrodes. Those are the wires that you were talking
09:25:47 20 about, correct?

09:25:47 21 A. That is correct.

09:25:49 22 Q. And the flexible touch sensor was configured so it
09:25:54 23 would bend with the flexible display, correct?

09:25:58 24 A. Correct.

09:25:58 25 Q. You then require -- required that the flexible

09:26:05 1 material, the copper lines that you were describing, had to
09:26:10 2 form a mesh grid, correct?
09:26:13 3 A. That is correct.
09:26:13 4 Q. And the substantially flexible substrate and the touch
09:26:22 5 sensor are configured to wrap around one or more edges of a
09:26:26 6 display, correct?
09:26:27 7 A. That is correct.
09:26:28 8 Q. The claim does not require a display, does it?
09:26:33 9 A. Touch sensor has to be used with a display. That was
09:26:45 10 the main application.
09:26:46 11 Q. The claim does not require that there be a display;
09:26:51 12 isn't that right? It only requires that the flexible touch
09:26:57 13 sensor and the flexible substrate themselves be configured
09:27:05 14 to bend around a display?
09:27:07 15 A. That is correct.
09:27:07 16 Q. And then the last element is you have the chip, the
09:27:12 17 computer chip, correct?
09:27:13 18 A. That is correct.
09:27:14 19 Q. And because Atmel didn't sell displays, this claim
09:27:22 20 covered your Atmel embodiment of the touch sensor, which
09:27:27 21 was a touch sensor that was -- had copper drive and sense
09:27:34 22 electrodes that was put on this plastic PET substrate,
09:27:37 23 correct?
09:27:37 24 A. That is correct.
09:27:39 25 Q. And that was your invention?

09:27:41 1 A. Correct.

09:27:42 2 Q. So what -- you never considered -- you never at Atmel
09:27:56 3 attempted to print the touch sensor directly on the
09:27:59 4 display, did you?

09:28:00 5 MS. FAIR: Objection, Your Honor. Whether or not
09:28:01 6 he tried to make the embodiment --

09:28:04 7 THE COURT: Overruled, counsel. You're not going
09:28:05 8 to make a jury speech in lieu of an objection. If you have
09:28:10 9 a legal basis to object, give me that legal basis. Don't
09:28:10 10 start with a speaking argument. Now, if you have a legal
09:28:13 11 objection to that question, give it to me.

09:28:15 12 MS. FAIR: It's an improper comparison, and it's
09:28:17 13 expert testimony. It calls for expert testimony. This is
09:28:19 14 a fact witness.

09:28:20 15 THE COURT: Overruled. He asked this inventor
09:28:23 16 what the inventor did with his invention. He has personal
09:28:27 17 knowledge of that. He's entitled to testify to it. Your
09:28:30 18 objection is overruled.

09:28:33 19 Q. (By Mr. Haslam) Did you ever try to print a touch
09:28:36 20 sensor directly on a display?

09:28:38 21 A. No.

09:28:38 22 Q. And you couldn't have tried that because you didn't
09:28:43 23 make displays at Atmel, correct?

09:28:44 24 A. That is correct.

09:28:49 25 Q. So when Samsung Display told you that they were going

09:28:53 1 to try to print the touch sensor directly on the display,
09:29:01 2 you knew that that was something you hadn't tried, correct?
09:29:04 3 A. That is correct.
09:29:05 4 Q. And you knew that your invention embodied in Claim 7
09:29:12 5 didn't address whether or not the touch sensor and the
09:29:16 6 substrate that were separately sold could somehow be
09:29:21 7 printed directly on the display, correct?
09:29:26 8 A. As we discussed, and I mentioned earlier, we were --
09:29:34 9 Atmel was not in display, so we could not print on a
09:29:38 10 display. But that's where we were looking for partnership
09:29:44 11 with Samsung, flexible group to work together.
09:29:47 12 Q. Well, the Samsung Display is the one that came up with
09:29:51 13 the idea that they wanted to print the touch sensor
09:29:55 14 directly on the display, correct?
09:30:01 15 A. I partially agree.
09:30:02 16 Q. And you partially disagree?
09:30:04 17 A. Yes.
09:30:04 18 Q. Do you know that Samsung had documents before your
09:30:14 19 invention that described an integrated touch sensor where
09:30:19 20 the touch sensor was printed directly on the display?
09:30:22 21 A. Using copper lines, no.
09:30:30 22 Q. Are you aware of documentation that Samsung, before the
09:30:38 23 '311 invention, had --
09:30:40 24 A. No.
09:30:40 25 Q. -- had planned or had developed the ability to print

09:30:47 1 touch sensors directly on displays?

09:30:50 2 A. No, I don't.

09:30:50 3 Q. Would it surprise you if there were such documents?

09:31:00 4 A. Yes.

09:31:02 5 Q. Now, you recognized when Samsung told you that they

09:31:11 6 wanted to print the touch sensor directly on the display,

09:31:17 7 that that would have certain advantages, correct?

09:31:23 8 A. Yes.

09:31:23 9 Q. And what you recognized is it would eliminate a

09:31:28 10 supply -- another supply chain, correct?

09:31:29 11 A. In addition to other benefits, yes.

09:31:31 12 Q. And by eliminating another supply chain meant that

09:31:36 13 Samsung wouldn't have to buy external touch sensors, such

09:31:40 14 as Atmel's or Alps, which is the one they were using, but

09:31:45 15 instead they could take that all in-house, correct, so

09:31:51 16 simplify the supply chain?

09:31:53 17 A. Correct.

09:31:53 18 Q. You also recognized that when Samsung told you --

09:32:00 19 Samsung Display told you they were going to print directly

09:32:02 20 on the display, that that would eliminate having to put

09:32:08 21 another layer on top of the display, the touch sensor and

09:32:11 22 the substrate that Atmel or Alps or other such companies

09:32:15 23 were selling, correct?

09:32:16 24 A. Correct.

09:32:18 25 Q. And you knew that if Samsung could do that, it would

09:32:23 1 make the display narrower, very, very narrow, and it would
09:32:29 2 eliminate the glue, which was necessary to glue the Atmel
09:32:34 3 type of external sensor, which was the substrate and the
09:32:39 4 touch sensor that Samsung would have bought and then glued
09:32:43 5 on the display, correct?

09:32:44 6 A. Correct.

09:32:45 7 Q. While I'm at it, let me just ask you a few questions
09:32:55 8 about pricing.

09:32:56 9 In 2012, right, when you were out marketing the
09:33:00 10 Atmel products, your competitor was ITO, correct?

09:33:08 11 A. That is correct.

09:33:09 12 Q. And in order to be competitive with the ITO touch
09:33:13 13 sensors that were out there, your CEO told you that you had
09:33:17 14 to price your product at a dollar per inch, correct?

09:33:22 15 A. Correct.

09:33:23 16 Q. And so if it was a four-inch screen, the touch sensor
09:33:26 17 would be \$4, correct?

09:33:29 18 A. Correct.

09:33:30 19 Q. And that included not only the touch sensor on the --
09:33:34 20 on the flexible substrate, it also included the controller,
09:33:40 21 correct?

09:33:40 22 A. No.

09:33:40 23 Q. At one point -- anyway. I withdraw that.

09:33:54 24 I think you testified before, in your deposition,
09:34:00 25 that by 2015 or 2016, you thought you could make a profit

09:34:05 1 selling your sensor at \$1 per inch, correct?

09:34:12 2 A. Correct.

09:34:12 3 Q. And was ITO at that time still around \$1 an inch?

09:34:17 4 A. I don't remember exactly, but I knew that I was

09:34:26 5 price-competitive.

09:34:28 6 Q. So companies that wanted to use ITO would buy touch

09:34:33 7 sensors for about \$1 an inch or they could buy, for

09:34:39 8 example, your product for about \$1 an inch?

09:34:42 9 A. Correct.

09:34:42 10 Q. So on a phone with a six-inch screen, that would be

09:34:45 11 about \$6, correct?

09:34:48 12 A. Correct.

09:34:48 13 Q. Now, I think you said it in your testimony -- direct

09:34:58 14 testimony, in 2012, ITO was brittle and they couldn't bend,

09:35:06 15 correct?

09:35:06 16 A. Correct.

09:35:06 17 Q. At some point in time, were there products with ITO

09:35:10 18 that did bend?

09:35:12 19 A. To my knowledge later on, not at that time.

09:35:18 20 Q. When later on?

09:35:19 21 A. The first product I'm familiar with, S7 Edge.

09:35:29 22 Q. And that was a Samsung product?

09:35:31 23 A. That is correct.

09:35:32 24 Q. That used ITO?

09:35:34 25 A. Correct.

09:35:35 1 Q. Now, you said you were involved in the sale of the
09:35:43 2 Atmel touch sensor business at Uni-Pixel?
09:35:46 3 A. That is correct.
09:35:47 4 Q. And you negotiated that on behalf of Atmel?
09:35:51 5 A. That is correct.
09:35:53 6 Q. And you told Mr. Dell, correct, that the principal
09:36:03 7 value in the patent portfolio that went to Uni-Pixel was
09:36:09 8 the '311 patent, correct?
09:36:15 9 A. Well, there were a lot of other patents, too.
09:36:21 10 Q. Was the '311 patent fundamental to the Uni-Pixel deal?
09:36:32 11 A. Our focus was manufacturing first and then other
09:36:40 12 patents.
09:36:41 13 Q. So you were more concerned with the equipment and the
09:36:46 14 employees and the ability to manufacture the Uni-Pixel
09:36:53 15 deal?
09:36:53 16 A. At that time, yes.
09:36:54 17 Q. So did you tell Mr. Dell that the technology covered by
09:36:58 18 the '311 patent was fundamental to the importance of the
09:37:03 19 license agreement being executed and that if that patent or
09:37:09 20 its application at the time were not to have been included,
09:37:12 21 that he, you, would not have executed the license? Is that
09:37:19 22 a correct statement?
09:37:26 23 A. Could you please repeat the question?
09:37:29 24 Q. Yes.
09:37:30 25 Based on my discussions with Mr. Shaikh, I

09:37:33 1 understand it was his position that the technology covered
09:37:36 2 by the '311 patent was fundamental to the importance of the
09:37:41 3 license agreement being executed and that if that patent or
09:37:45 4 its application at the time were not to have been included,
09:37:50 5 that he would not have executed the license.

09:37:54 6 THE COURT: Is that a question? You're reading
09:37:56 7 from Mr. Dell's deposition?

09:37:57 8 MR. HASLAM: Yes. I'm reading from his report and
09:38:00 9 asking if he had that discussion with Mr. Dell.

09:38:03 10 THE COURT: All I heard is you read a statement
09:38:05 11 from his report. Let's put it in the form of a question.

09:38:08 12 Q. (By Mr. Haslam) Did you tell Mr. Dell what I just read
09:38:11 13 to you?

09:38:11 14 A. I don't remember.

09:38:16 15 Q. At the time of the Uni-Pixel deal, which was March
09:38:22 16 2015, the '311 patent didn't exist; isn't that right?

09:38:30 17 A. We had filed for this thing.

09:38:32 18 Q. The '311 patent didn't exist at the time of the
09:38:37 19 Uni-Pixel transaction, did it?

09:38:39 20 A. It was awarded after.

09:38:47 21 Q. It was awarded in 2016.

09:38:49 22 A. Correct.

09:38:50 23 Q. And at the time of the Uni-Pixel deal, for the fourth
09:38:53 24 time, the Patent Office had rejected the claims that Atmel
09:38:56 25 was presenting and trying to patent; isn't that true?

09:39:00 1 A. I am not aware of that.

09:39:04 2 MR. HASLAM: Your Honor, the issue we talked about
09:39:07 3 yesterday, I'd like to go to the prosecution history.

09:39:12 4 MS. FAIR: I don't know that this is a discussion
09:39:13 5 that we should have in front of the jury, Your Honor, given
09:39:16 6 the Court's instruction earlier.

09:39:17 7 THE COURT: I agree.

09:39:18 8 MS. FAIR: I hate to interrupt but --

09:39:21 9 THE COURT: That's all right.

09:39:21 10 Ladies and gentlemen of the jury, I've got a
09:39:23 11 matter I need to take up with counsel outside of your
09:39:25 12 presence. In the old days pre-pandemic, I'd bring them up
09:39:30 13 here to the side of the bench, and we would talk about it
09:39:33 14 quietly, and you could stay where you are. I can't do that
09:39:37 15 today.

09:39:37 16 So I'm going to ask you to retire to the jury
09:39:39 17 room. I'll be as brief with them as I can be and have you
09:39:42 18 back in here shortly to continue. This is one of those
09:39:45 19 opportunities where you can simply just close and leave
09:39:48 20 your notebooks in your chairs, and we'll have you back here
09:39:50 21 shortly.

09:39:51 22 The jury is excused to the jury room at this time.

09:39:53 23 COURT SECURITY OFFICER: All rise.

09:39:54 24 (Jury out.)

09:39:54 25 THE COURT: Be seated, please.

09:40:24 1 All right. Mr. Haslam, what's your request? You
09:40:30 2 want to use prosecution history by way of --

09:40:34 3 MR. HASLAM: I want to show the claim --

09:40:36 4 THE COURT: Let me ask my question before you
09:40:40 5 start talking.

09:40:41 6 MR. HASLAM: I'm sorry. I apologize, Your Honor.

09:40:43 7 I know I'm not supposed to do that.

09:40:43 8 THE COURT: Well, It's impossible, even as
09:40:46 9 excellent a court reporter as I have, to write two people
09:40:48 10 speaking at the same time.

09:40:49 11 So, as I understand it, you want to refer to
09:40:52 12 prosecution history as a means to impeach this witness in
09:40:56 13 light of his last answer?

09:40:57 14 MR. HASLAM: Yes.

09:40:57 15 THE COURT: Specifically, what in the prosecution
09:41:00 16 history are you talking about?

09:41:02 17 MR. HASLAM: I want to show the claim as it
09:41:04 18 existed in March of 2015 and the rejection before -- after
09:41:14 19 that, just that.

09:41:20 20 THE COURT: What's the response from Plaintiff?

09:41:22 21 MS. FAIR: Two things, Your Honor.

09:41:23 22 First, that's not an impeachment. It's not
09:41:26 23 inconsistent with what this witness has said. He said he
09:41:29 24 doesn't remember. He doesn't have a foundation.

09:41:31 25 And the second is this witness was not personally

09:41:34 1 involved in the claims.

09:41:35 2 As you know, that's a process that happens between
09:41:38 3 the prosecuting attorneys and the examiners at the Patent
09:41:41 4 Office. And to confront the inventor in front of the jury
09:41:44 5 with the claims that were rejected, is incredibly
09:41:46 6 prejudicial.

09:41:47 7 THE COURT: Well, in light of the fact that the
09:41:51 8 witness told the jury in response to your question,
09:41:54 9 Mr. Haslam, that he wasn't aware, I do agree with
09:41:58 10 Plaintiff's counsel. It would be improper impeachment for
09:42:02 11 you to show him prosecution history that he was not
09:42:04 12 involved with.

09:42:10 13 Now, we can take up at a later date what's
09:42:13 14 appropriate for your case-in-chief when we get to it, but
09:42:16 15 at this point I'll order -- or find that it's improper
09:42:19 16 impeachment.

09:42:19 17 MR. HASLAM: Okay. Thank you, Your Honor.

09:42:20 18 THE COURT: Let's bring the jury back in.

09:42:21 19 We'll charge this time to the Defendant.

09:44:00 20 COURT SECURITY OFFICER: All rise.

09:44:04 21 (Jury in.)

09:44:04 22 THE COURT: Please be seated.

09:44:27 23 Thank you for your indulgence, ladies and
09:44:31 24 gentlemen.

09:44:31 25 Mr. Haslam, ask your next question.

09:44:35 1 MR. HASLAM: Can we go back to Exhibit 3 of the
09:44:41 2 '311 patent? Can we put up Figure 7?
09:44:45 3 Q. (By Mr. Haslam) Now, this is a drawing that's in the
09:44:49 4 patent, and this depicts what we -- part of what we saw in
09:44:56 5 Claim 7, correct, the touch sensor and the substrate?
09:45:00 6 A. Correct.
09:45:02 7 MS. FAIR: Objection, Your Honor. I don't want to
09:45:04 8 have to interrupt again and excuse the jury, but I need to
09:45:09 9 make arguments about this that I know the Court doesn't
09:45:12 10 want us to do in open court.
09:45:14 11 Normally, I would just come up there, but that's
09:45:16 12 why I felt compelled to make the argument without
09:45:19 13 disrupting. But may we have another bench conference?
09:45:29 14 MR. HASLAM: It's an exhibit.
09:45:30 15 THE COURT: I understand that.
09:45:31 16 MR. HASLAM: It's in the jury's binder.
09:45:32 17 THE COURT: I understand that, counsel. She's
09:45:34 18 talking to me. She's not talking to you.
09:45:38 19 All right. Ladies and gentlemen, I'm going to ask
09:45:41 20 you to retire to the jury room one more time. I promise
09:45:43 21 you, we will get to the bottom of this, and you won't have
09:45:46 22 to go back and forth again.
09:45:47 23 The jury is excused to the jury room.
09:45:51 24 COURT SECURITY OFFICER: All rise.
09:45:52 25 (Jury out.)

09:46:18 1 THE COURT: Be seated.

09:46:23 2 Mr. Haslam, when opposing counsel is speaking to
09:46:27 3 the Court, it is not incumbent upon you to respond for the
09:46:31 4 Court to opposing counsel. If I want your help in
09:46:34 5 answering her, I will ask for it. Don't do that again.

09:46:38 6 MR. HASLAM: I will not.

09:46:38 7 THE COURT: It shows disrespect for the Court, and
09:46:41 8 it's not to be tolerated.

09:46:43 9 MR. HASLAM: I apologize.

09:46:43 10 THE COURT: And, Ms. Fair, I don't know why we
09:46:47 11 didn't have whatever it is you're about to tell me
09:46:49 12 discussed and out on the table while I had the jury out
09:46:52 13 just moments ago.

09:46:53 14 You and I all know we've got an elderly gentleman
09:46:57 15 with a cane. It's hard for him to come and go from the
09:47:00 16 jury box. And to send them back out seconds after they
09:47:03 17 came back in, is burdensome on this jury, and I'm not going
09:47:07 18 to countenance that. And there's no reason whatever it is
09:47:10 19 you're going to tell me shouldn't have been told to me
09:47:12 20 while they were out the first time.

09:47:14 21 So we're going to get to the bottom of this, and
09:47:17 22 we're going to move on.

09:47:18 23 This exhibit is an admitted exhibit in the case.
09:47:20 24 If he wants to question this witness as to his personal
09:47:23 25 knowledge about this patent, he's entitled to do that on

09:47:26 1 cross-examination. So tell me what your problem is.

09:47:30 2 MS. FAIR: My issue, Your Honor, is what I fear
09:47:33 3 this is going to -- and I apologize for not handling this
09:47:36 4 while the jury was out before. I didn't know we were going
09:47:39 5 to go here.

09:47:40 6 I have no problem with them showing the jury an
09:47:42 7 admitted exhibit. The problem is when you pull up a
09:47:45 8 specific figure of the patent -- and this is where we know
09:47:49 9 this case is going -- their display is more curved than
09:47:54 10 Figure 7 of the patent.

09:47:56 11 It's an issue that came up in claim construction.
09:47:59 12 It's -- what they're going to do is take the picture, the
09:48:03 13 Figure 7 from the patent, with the more pronounced corners
09:48:08 14 of the display and then show what their display is, which
09:48:12 15 is curved, not the same pronounced 90-degree angle, and try
09:48:15 16 and make an argument to this jury that there's not more --
09:48:19 17 more than one surface, multiple surfaces that the touch
09:48:22 18 sensor is wrapping around.

09:48:23 19 And what that is doing is comparing the preferred
09:48:27 20 embodiment that is depicted in the patent to an accused
09:48:30 21 product, which is absolutely improper.

09:48:32 22 And so going into this specific figure with the
09:48:36 23 inventor, while there's not normally an issue with talking
09:48:39 24 about content of a pre-admitted exhibit, the only reason
09:48:43 25 they're going to be doing it is for a prejudicial argument

09:48:45 1 that's improper.

09:48:46 2 THE COURT: All right. Ms. Fair, first of all,
09:48:48 3 it's an admitted exhibit, and every page of it is an
09:48:52 4 admitted exhibit. And I can't tie the Defendants' hands
09:48:57 5 from asking this witness about a patent-in-suit that's in
09:48:59 6 evidence.

09:49:00 7 You can address this on cross -- on redirect.

09:49:03 8 You've got an expert witness who's coming on shortly
09:49:06 9 hereafter, who I expect whatever Mr. Haslam alludes to is
09:49:09 10 going to be able to address it and correct it within the
09:49:12 11 confines of their report.

09:49:15 12 You may be afraid that's where the Defendant is
09:49:19 13 going. I can't keep the Defendant from going there with
09:49:23 14 this exhibit and this witness on the witness stand without
09:49:26 15 putting a thumb on the scales I'm not prepared to do.

09:49:29 16 So your objection is overruled.

09:49:34 17 Now, is there anything else about the continued
09:49:36 18 cross-examination and redirect of this witness that I need
09:49:39 19 to know about before I bring the jury back in?

09:49:43 20 Are you aware of anything else, Ms. Fair?

09:49:45 21 MS. FAIR: I'm not at this time, Your Honor.

09:49:47 22 THE COURT: Okay. Mr. Haslam?

09:49:50 23 MR. HASLAM: I'm not aware, and I don't believe
09:49:52 24 there will be anything.

09:49:53 25 THE COURT: Is there any reason I shouldn't bring

09:49:55 1 the jury back in?

09:49:58 2 And while the jury is out, I want to say one other
09:50:01 3 thing. There was a cell phone that went off in the middle
09:50:04 4 of this trial and nobody would fess up to it, and that's
09:50:06 5 fine.

09:50:07 6 If I hear another device interrupt this trial, I
09:50:10 7 will exclude every electronic device from everybody in this
09:50:17 8 courtroom that's inside the bar and outside the bar in the
09:50:19 9 gallery. So don't let it happen again.

09:50:23 10 It's bothersome enough that it happens. Most
09:50:26 11 everybody in this courtroom is either an officer of the
09:50:28 12 Court or they're somebody that works for a recognized law
09:50:33 13 firm. And when I ask a question and nobody will even admit
09:50:35 14 what I've clearly heard, it causes the Court a great bit of
09:50:40 15 consternation.

09:50:41 16 So the only thing I can tell you is, if it happens
09:50:45 17 again, everybody in this courtroom is going to lose their
09:50:48 18 devices. All right?

09:50:49 19 Anything else before I bring the jury back?

09:50:54 20 Let's bring the jury back, Mr. Johnston.

09:51:23 21 COURT SECURITY OFFICER: All rise.

09:51:24 22 (Jury in.)

09:51:24 23 THE COURT: Please be seated, ladies and
09:51:34 24 gentlemen.

09:51:34 25 Members of the jury, thank you for your

09:51:39 1 cooperation. Trials are not an exact science. Sometimes I
09:51:43 2 have to take things up outside your presence. Thank you
09:51:45 3 for your understanding.

09:51:46 4 Let's proceed with the Defendants'
09:51:48 5 cross-examination.

09:51:50 6 Q. (By Mr. Haslam) Looking again at Figure 7, the --
09:51:53 7 you'll see three separate structures, correct?

09:51:57 8 A. Correct.

09:51:58 9 Q. And the one that is labeled 601 is the cover or the --
09:52:04 10 would be a glass cover typically, correct?

09:52:07 11 A. Correct.

09:52:07 12 Q. The one that is labeled 602 depicts the flexible
09:52:13 13 substrate, correct?

09:52:14 14 A. Correct.

09:52:15 15 Q. And then there's a number on the right-hand side, 612,
09:52:21 16 which appears to be pointing up to perhaps some line
09:52:26 17 that's -- light line that's going across the substrate?

09:52:31 18 A. I see that. I don't remember it, yes.

09:52:35 19 Q. Yeah. And that is depicting the touch sensor on the
09:52:38 20 substrate -- on the substrate, correct?

09:52:41 21 A. Correct.

09:52:41 22 Q. And then down below, 603 is the display, correct?

09:52:47 23 A. Correct.

09:52:48 24 Q. And if we go back up to the cover on the right-hand
09:52:52 25 side, you've got, you know, in the front what looks like a

09:53:00 1 light-colored oval shape, and if we go back along, there's
09:53:04 2 two oval shapes and then what looks like a series of bars
09:53:08 3 that get -- go from small to big; is that correct?
09:53:11 4 A. Volume control, yes.
09:53:13 5 Q. Yeah. So this depicts being able to put the touch
09:53:18 6 sensor on the side of the phone so you could do the volume
09:53:21 7 control using a touch sensor rather than a mechanical
09:53:26 8 button, correct?
09:53:27 9 A. Correct.
09:53:27 10 Q. And in this particular picture, this example -- this is
09:53:35 11 just an example, correct?
09:53:36 12 A. Correct.
09:53:37 13 Q. The substrate and the touch sensor have a flat part,
09:53:48 14 the top, correct?
09:53:49 15 A. Okay.
09:53:50 16 Q. And then the substrate and the touch sensor go over
09:53:58 17 something that's close to a right angle and go down the --
09:54:02 18 continue down the side, correct?
09:54:03 19 A. Understand.
09:54:04 20 Q. And then the display would have a display on the top
09:54:10 21 and then a display on the side as depicted in this picture,
09:54:13 22 correct?
09:54:13 23 A. Understand.
09:54:14 24 Q. And this is just an example, correct?
09:54:17 25 A. Correct.

09:54:17 1 Q. And the touch sensor and the substrate, as depicted
09:54:25 2 here, are configured to wrap around the edge of the
09:54:29 3 display, correct?
09:54:29 4 A. Correct.
09:54:31 5 Q. And you've labeled in here 613. That's the edge
09:54:37 6 between the top of the display and the side of the display?
09:54:42 7 A. Understand.
09:54:42 8 Q. Thank you.
09:54:45 9 MR. HASLAM: I have no further questions.
09:54:47 10 THE COURT: You pass the witness, counsel?
09:54:48 11 MR. HASLAM: I pass the witness.
09:54:49 12 THE COURT: Is there redirect from the Plaintiff?
09:54:51 13 MS. FAIR: Yes, Your Honor.
09:54:52 14 THE COURT: All right. Let's proceed with
09:54:53 15 redirect examination.
09:55:16 16 Please proceed.
09:55:17 17 MS. FAIR: Thank you, Your Honor.
09:55:17 18 REDIRECT EXAMINATION
09:55:18 19 BY MS. FAIR:
09:55:18 20 Q. Mr. Shaikh --
09:55:27 21 MS. FAIR: Mr. Wietholter, can we pull up PTX-003,
09:55:32 22 please, and go to Claim 7? Sorry, Claim 7. So it should
09:55:56 23 be, I think, on the last page.
09:56:32 24 THE COURT: You can use the document camera.
09:56:35 25 MS. FAIR: Yes, Your Honor, if I may.

09:56:47 1 I'm sorry, I threw my graphics team a little bit
09:56:51 2 of a curve ball.

09:57:08 3 Q. (By Ms. Fair) Mr. Shaikh, in Claim 7, is there
09:57:20 4 anywhere there where it says PET substrate?

09:57:28 5 A. No.

09:57:28 6 Q. Is there anywhere there where it says copper is
09:57:33 7 required?

09:57:33 8 A. No.

09:57:34 9 Q. Do you have -- well, let me --

09:57:42 10 MS. FAIR: Mr. Wietholter, can we go to PTX-650?
09:57:52 11 Ms. Brunson, if we may switch the display? I'm
09:57:56 12 sorry.

09:57:57 13 Page 5, please.

09:58:02 14 Q. (By Ms. Fair) Is this another example of what you were
09:58:04 15 showing Samsung, in the 2012 time period, of what your
09:58:09 16 technology was?

09:58:10 17 A. That is correct.

09:58:11 18 Q. And when you were showing them this technology in 2012,
09:58:18 19 did you have access to their confidential information?

09:58:22 20 A. No.

09:58:22 21 Q. Do you have access to their confidential information
09:58:26 22 today to know how they're making their touch sensors?

09:58:31 23 A. No.

09:58:31 24 Q. Have you spent hours of time looking at the claim and
09:58:36 25 the confidential information of Samsung to know whether or

09:58:40 1 not they're using your invention?

09:58:41 2 A. No.

09:58:42 3 Q. But when you were showing this to them in 2012, 2013,

09:58:48 4 2014, 2015, 2016, were you concerned about showing them

09:58:55 5 your technology?

09:58:56 6 A. Yes.

09:58:58 7 Q. Why?

09:58:58 8 A. Because it was a novel idea, and we truly believed in

09:59:08 9 2011 that this thing would happen, things to come. And,

09:59:13 10 yes, I was concerned that this idea would leak out.

09:59:19 11 MS. FAIR: I pass the witness, Your Honor.

09:59:20 12 THE COURT: Further cross-examination?

09:59:28 13 MR. HASLAM: No, Your -- no, Your Honor.

09:59:32 14 THE COURT: All right. Mr. Shaikh, you may step

09:59:35 15 down, sir.

09:59:35 16 MS. FAIR: Your Honor, may this witness be

09:59:38 17 excused?

09:59:38 18 THE COURT: Is there any objection from Defendant?

09:59:40 19 MR. HASLAM: No, Your Honor.

09:59:41 20 THE COURT: Mr. Shaikh, you're excused, sir. That

09:59:43 21 means you're welcome to stay with us, but you're also free

09:59:47 22 to leave. It's your choice.

09:59:49 23 THE WITNESS: Thank you.

09:59:50 24 THE COURT: Thank you.

09:59:51 25 Am I correct, counsel, the next witness is a

09:59:54 1 witness by deposition?

09:59:55 2 MR. MIRZAIE: Correct, Your Honor.

09:59:56 3 THE COURT: And it's a lengthy deposition?

09:59:59 4 MR. MIRZAIE: It is, Your Honor.

10:00:00 5 THE COURT: Well, ladies and gentlemen of the
10:00:02 6 jury, even though you've had a couple trips to the jury
10:00:04 7 room so far, they haven't been very long, and none of the
10:00:07 8 rest of us have been out of the courtroom, so we're going
10:00:10 9 to take a short recess before we start this lengthy
10:00:12 10 deposition. And I expect to be back in about 10 or 12
10:00:15 11 minutes, and we'll continue.

10:00:17 12 With that, the jury is excused for recess at this
10:00:19 13 time.

10:00:19 14 COURT SECURITY OFFICER: All rise.

10:00:24 15 THE COURT: Remember to follow all the
10:00:26 16 instructions I've given you.

10:00:28 17 (Jury out.)

10:00:29 18 THE COURT: The Court stands in recess.

10:00:54 19 (Recess.)

10:24:50 20 (Jury out.)

10:24:53 21 COURT SECURITY OFFICER: All rise.

10:24:53 22 THE COURT: Be seated, please.

10:24:54 23 Counsel, before I bring in the jury, I want to
10:25:01 24 visit with you briefly about demonstratives for use with
10:25:07 25 Mr. Credelle that were objected to overnight that we did

10:25:11 1 not have an opportunity to talk about before we started
10:25:14 2 today's portion of the trial.

10:25:17 3 Over the recess, I finished my review of your
10:25:20 4 objections and those demonstratives, and I'm going to give
10:25:24 5 you my rulings. And over the course of this deposition,
10:25:31 6 any adjustments to these demonstratives can be made so that
10:25:34 7 we should not have a delay in proceeding directly with
10:25:37 8 Mr. Credelle after the deposition witness is complete.

10:25:40 9 On Demonstrative -- and these are page numbers in
10:25:47 10 the bottom right-hand corner for reference.

10:25:50 11 On Demonstrative 166, which has a reference to
10:25:54 12 PTX-135 on it, the heading of this slide now reads:
10:26:05 13 Samsung phone Include Emitting Layer and Upper Electrode
10:26:11 14 Over Transistors. That heading needs to be modified to
10:26:15 15 say: Emitting Layer and Upper Electrode Over Transistors.

10:26:20 16 The photograph in the left-hand margin of
10:26:24 17 Samsung's cell phone needs to be deleted.

10:26:27 18 Otherwise, the remainder of that slide is
10:26:29 19 acceptable as a demonstrative.

10:26:30 20 Then on slide, numbered in the bottom right-hand
10:26:37 21 corner 205, the identifier of Samsung Galaxy S8 in orange
10:26:47 22 on top of the greenish block should be deleted. The same
10:26:54 23 thing on 207. And the same thing on 209 where it
10:26:59 24 references a Samsung gallery -- Galaxy, I'm sorry, Galaxy
10:27:04 25 Note 5.

10:27:05 1 Those orange headings should be deleted.

10:27:11 2 Otherwise, those three slides are permissible as

10:27:14 3 demonstratives.

10:27:16 4 Considering the remaining objections and those

10:27:19 5 slides that have been resolved where objection has been

10:27:21 6 resolved, the remainder of the demonstratives for use with

10:27:24 7 Mr. Credelle are permissible as they stand without further

10:27:27 8 change or modification.

10:27:29 9 All right. Is Plaintiff prepared to present its

10:27:35 10 next witness by deposition?

10:27:37 11 MS. FAIR: Yes, Your Honor.

10:27:38 12 THE COURT: Are you going to go to the podium and

10:27:40 13 introduce the witness for the jury?

10:27:43 14 MS. FAIR: Yes, Your Honor.

10:27:44 15 THE COURT: All right. Let's bring the jury in,

10:27:47 16 please.

10:27:47 17 MS. FAIR: Did you want me go now, Your Honor, or

10:27:53 18 did you want me to wait --

10:27:54 19 THE COURT: You can go to the podium.

10:27:56 20 COURT SECURITY OFFICER: All rise.

10:27:57 21 (Jury in.)

10:28:30 22 THE COURT: Welcome back, ladies and gentlemen.

10:28:46 23 Please be seated.

10:28:46 24 All right. Plaintiff, call your next witness.

10:28:50 25 MS. FAIR: Your Honor, the Plaintiff calls

10:28:53 1 Mr. Esat Yilmaz by deposition, a co-inventor on the '311
10:28:58 2 patent.

10:28:59 3 And, for the record, the time counted -- to be
10:29:01 4 counted against Solas is 40 minutes, and Samsung's portion
10:29:05 5 of the clips are 42 minutes. And there are some exhibits
10:29:09 6 used to correlate the Yilmaz exhibit number with the
10:29:15 7 PTX-number, if I may for the record?

10:29:16 8 THE COURT: Go ahead.

10:29:17 9 MS. FAIR: Yilmaz Exhibit No. 4 is PTX-003.
10:29:24 10 Yilmaz Exhibit 18 is PTX-701. Yilmaz Exhibit 32 is
10:29:31 11 PTX-702. Yilmaz Exhibit 33 is PTX-692. Yilmaz Exhibit 34
10:29:39 12 is PTX-694.

10:29:42 13 THE COURT: All right. Proceed with the witness
10:29:47 14 by deposition.

10:29:49 15 MS. FAIR: Thank you, Your Honor.

10:29:49 16 ESAT YILMAZ, PLAINTIFF'S WITNESS

10:29:49 17 PRESENTED BY VIDEO DEPOSITION

10:29:51 18 (Videoclip played.)

10:29:51 19 Q. Good morning. Can you state your current address?

10:29:54 20 A. Good morning. 681 Nobel Drive, Santa Cruz, California,
10:30:03 21 95060.

10:30:04 22 Q. Okay. How long has the firm of Russ Kabat been
10:30:11 23 representing you individually?

10:30:12 24 A. We have been communicating about a year, I believe.

10:30:22 25 Q. Now, you said you'd been communicating with them for

10:30:27 1 about a year. And I want to make clear, have you been
10:30:31 2 communicating with them as your individual counsel, as
10:30:36 3 opposed to have you been communicating with them in their
10:30:39 4 capacity as counsel for Solas?
10:30:41 5 A. I've signed a contract with them.
10:30:47 6 Q. And is that a consulting agreement?
10:30:50 7 A. Yes.
10:30:53 8 Q. Okay. Okay. You're one of the named inventors on a
10:30:58 9 patent that the last three numbers of which are the '311;
10:31:02 10 is that correct?
10:31:02 11 A. That's correct.
10:31:02 12 Q. If I refer to that patent as the '311 patent, will you
10:31:06 13 understand I'm referring to that -- that patent?
10:31:11 14 A. Yes.
10:31:11 15 Q. And who are the other inventors on that; do you recall?
10:31:15 16 A. Jalil Shaikh and Steve Laub.
10:31:17 17 Q. Okay. Did -- did you review the '311 patent?
10:31:22 18 A. Not recently.
10:31:27 19 Q. So you did not do so within the last two or three
10:31:31 20 weeks?
10:31:31 21 A. No.
10:31:32 22 Q. Let me clarify. My question is simply whether since
10:31:37 23 you received the subpoena, you have, in fact, reviewed the
10:31:40 24 '311 patent?
10:31:40 25 A. I'm sorry, my memory is not so clear whether I did or

10:31:59 1 not or when I did last time. But at some point, I did, but
10:32:08 2 it was not recently, you know. Not in the last, you know,
10:32:14 3 period, as far as I can remember.
10:32:17 4 Q. Did you get a plaque from Atmel for the patents that
10:32:24 5 you had issued?
10:32:25 6 A. I did, a few.
10:32:28 7 Q. Okay.
10:32:28 8 A. Probably about 20 or so.
10:32:29 9 Q. And you still have those?
10:32:33 10 A. I have them somewhere. I have not seen them for a
10:32:37 11 while, but --
10:32:39 12 Q. Not up on the -- they're not up on the wall in your
10:32:42 13 office there?
10:32:43 14 A. They should be. They should -- yeah.
10:32:45 15 Q. Okay. You should have in front of you a copy of
10:32:50 16 Exhibit 4, the '311 patent.
10:32:53 17 Do you recognize this patent?
10:32:55 18 A. Yes.
10:32:55 19 Q. And is it your understanding that this patent is the
10:33:04 20 reason you're here today?
10:33:08 21 A. Yes.
10:33:10 22 Q. Can you generally describe for me, in your own words,
10:33:17 23 the individual contributions that you, Mr. Laub, and
10:33:24 24 Mr. Shaikh contributed to this patent -- to the claimed
10:33:29 25 inventions in the patent?

10:33:33 1 ATTORNEY: Objection as to form.

10:33:44 2 A. I don't remember clearly what the individual

10:33:49 3 contributions were. We were in a meeting.

10:33:52 4 Q. Who was in the meeting?

10:34:09 5 A. It -- it would have been at least the three of us, but

10:34:14 6 I can't remember exactly who was in the meeting.

10:34:17 7 Q. You and Mr. Laub and Mr. Shaikh were in a meeting; is

10:34:26 8 that correct, at some point?

10:34:27 9 A. Yes, I believe that that was how the three of us ended

10:34:39 10 up on this patent.

10:34:39 11 Q. And am I correct that you're not sure whether there may

10:34:43 12 have been other people in attendance at that meeting?

10:34:47 13 A. Yeah, it would have been in the board room, if I

10:34:51 14 remember correctly. There might have been other people, as

10:34:57 15 well, but I -- I cannot remember.

10:34:58 16 Q. And -- and what was discussed at that meeting?

10:35:05 17 A. I mean, it would have been technology, but I can't

10:35:20 18 remember the details so far back.

10:35:23 19 Q. If you recall approximately, when did this meeting that

10:35:31 20 you're referring to take place in relation to the October

10:35:34 21 28, 2011, date?

10:35:36 22 A. I -- I couldn't tell you. I'm not sure.

10:35:47 23 Q. Did the meeting that you previously testified about,

10:35:53 24 where you, Mr. Laub, and Mr. Shaikh and possibly others

10:35:58 25 were present, relate at all to any of the subject matter of

10:36:03 1 Claim 1?

10:36:04 2 A. We were discussing technology at the time. I remember

10:36:13 3 there was a meeting, but I can't remember exactly what was

10:36:18 4 discussed -- discussed in that. I might have given an

10:36:22 5 update about, you know, our progress from technology point

10:36:26 6 of view. Because Steve and Jalil are -- well, Jalil is a

10:36:38 7 marketing person, and Steve is the CEO of the company, or

10:36:44 8 was the CEO.

10:36:45 9 Q. With respect to this -- to Claim 1 of the '311 patent,

10:36:49 10 what would you say was your contribution to the subject

10:36:53 11 matter of that patent -- of that claim?

10:36:55 12 A. So I'm the technology guy. So I've helped develop the

10:37:03 13 technology, the flexible touch sensor that is, you know,

10:37:12 14 capable of, you know, flexing and bending around displays

10:37:20 15 or -- or not. You know, it's a versatile material.

10:37:27 16 Q. And what -- what, if anything, do you recall Mr. Shaikh

10:37:32 17 contributing to the subject matter of Claim 1?

10:37:35 18 A. I can't recall exactly. We would have been discussing,

10:37:54 19 you know, what -- what can we do with -- what kind of

10:37:58 20 applications we can do with this kind of technology.

10:38:00 21 Q. Do you recall what contribution Mr. Laub made to the

10:38:10 22 subject matter of Claim 1 of the '311 patent?

10:38:13 23 A. No, for the same reason.

10:38:15 24 Q. Okay. Well, let me ask you to go back and look at the

10:38:20 25 lines between Column 7, Line 60 and Line 65.

10:38:28 1 And that reads, quote, as an example and not by
10:38:32 2 way of limitation, touch-sensitive apparatus 612 may be
10:38:38 3 wrapped over surfaces that are substantially perpendicular
10:38:42 4 to each other, or if there is no substantial distinction
10:38:49 5 between surfaces, paren, such as, for example, a
10:38:54 6 pebble-shaped or curved device, close paren, an angle of
10:38:59 7 deviation between the surfaces of 45 degrees or greater,
10:39:03 8 close quote.

10:39:04 9 A. Uh-huh.

10:39:06 10 Q. If you'd like, you can take as much time, again, to go
10:39:09 11 back and read that or read it in the context of -- of the
10:39:13 12 entire patent, if you want, or this paragraph. But --

10:39:17 13 A. Yeah.

10:39:17 14 Q. -- would you agree with me that that sentence is
10:39:21 15 drawing a distinction between what it calls curved or
10:39:26 16 pebble-shaped surfaces on the one hand and surfaces that
10:39:33 17 are substantially perpendicular to each other?

10:39:50 18 A. So pebble-shaped -- I'm just trying to remember why it
10:39:57 19 was written this way. It might have been for irregular
10:40:07 20 shapes, perhaps, where we could not distinguish the edge.

10:40:17 21 That's why we talk about pebble-shaped.

10:40:22 22 Q. Well, you're saying a pebble-shaped wouldn't have an
10:40:30 23 edge?

10:40:32 24 A. That's right.

10:40:33 25 Q. There's a distinction being drawn between surfaces

10:40:40 1 which have edges and surfaces which have no distinct --
10:40:45 2 substantial distinction between the surfaces?
10:40:47 3 A. Yeah.
10:40:48 4 Q. And a -- can we go on to Exhibit 5?
10:40:55 5 Do you recognize this document?
10:40:58 6 A. Yeah. Looks familiar as my contract.
10:41:19 7 Q. Is that your signature on the third page?
10:41:21 8 A. Yes.
10:41:26 9 Q. Okay. Is this consulting agreement still in effect?
10:41:33 10 A. I believe so, yes.
10:41:37 11 Q. And since the date of this agreement, have you been
10:41:42 12 providing consultation to Russ Kabat?
10:41:48 13 A. Yes.
10:41:53 14 Q. Okay. Can you tell me just a little bit about your
10:42:03 15 educational background, and briefly your work experience
10:42:10 16 from the time -- from high school or after, up until the
10:42:14 17 time you joined Atmel?
10:42:14 18 A. Uh-huh. I went to university in the U.K.
10:42:25 19 Okay. So I went to high school in Turkey. And I
10:42:33 20 went to -- to university in the U.K., University of
10:42:40 21 Southampton. And I did Bachelor's and Master's of computer
10:42:52 22 engineering.
10:42:52 23 Q. And can you then briefly outline for me your work
10:42:57 24 experience up to the time you joined at Atmel?
10:43:00 25 A. Yes. So I started working for a local company in the

10:43:05 1 same city, Southampton, a company called Electron Dynamics.
10:43:12 2 I work there until 2006.

10:43:17 3 And in 2006, I joined the company called Quantum
10:43:32 4 Research Group. So this is a company that is related to
10:43:35 5 touch technology, one of the, you know, leaders, original
10:43:39 6 leaders of the technology.

10:43:48 7 So I worked there until 2008, and Atmel acquired
10:43:53 8 that company.

10:43:54 9 Q. Okay. At Quantum Touch, can you just -- can you
10:43:58 10 generally tell me when you first began working on anything
10:44:01 11 that you would consider to be related to touch sensors and
10:44:05 12 generally what that work was?

10:44:08 13 A. So my initial work was working on chips, touch
10:44:15 14 controller chips. But right away, pretty much right away,
10:44:23 15 I got into also touch sensor design. Yeah. Initial
10:44:30 16 coding. And that coding and algorithm development,
10:44:34 17 et cetera, that -- I continued to work on that, as well as
10:44:38 18 working on touch sensors, as well, you know, design of the
10:44:42 19 touch sensor.

10:44:43 20 Q. Okay. When did you first begin working with copper as
10:44:49 21 a substance to use in the touch sensor circuitry?

10:45:03 22 A. It must have been around 2007, I think.

10:45:07 23 Q. What led you to begin working with copper as a material
10:45:13 24 for the circuitry of the touch sensor?

10:45:14 25 A. At the time, we were looking for better materials. We

10:45:31 1 knew the resistance of ITO was very high. So we started,
10:45:40 2 you know, investigating what options we have.
10:45:45 3 Q. And copper, I take it, had less resistance than ITO?
10:45:52 4 A. That's correct.
10:45:52 5 Q. Was there anything else about copper that led you to
10:45:55 6 begin working with copper as a possible material to use for
10:46:00 7 the circuitry of the touch sensor?
10:46:02 8 A. Resistance and flexibility were the two very key
10:46:11 9 components.
10:46:11 10 Q. And -- and the -- the flexibility that copper gave
10:46:20 11 you at that time, did you consider or realize that it would
10:46:23 12 allow you to flex a touch sensor in some fashion or bend
10:46:30 13 it, curve it?
10:46:32 14 A. Yes.
10:46:37 15 Q. Yeah.
10:46:38 16 A. Yes, we -- that was one of our initial thoughts. As
10:46:42 17 well as -- there are two aspects to it that -- two aspects
10:46:46 18 to it. There is the yield aspect, which is, you know,
10:46:50 19 handling of the material and the processing. If the
10:46:53 20 material is less brittle and more flexible, then the yields
10:46:57 21 can be higher.
10:46:57 22 Q. Well, when is the first time at anywhere that you were
10:47:03 23 involved in a project where you could make a flexible touch
10:47:08 24 sensor using copper?
10:47:08 25 A. I -- I can't remember the exact date, but it would have

10:47:34 1 been after the acquisition. I believe we used copper to
10:47:38 2 make a touch sensor.

10:47:39 3 Q. And at the time that you made this touch sensor, was it
10:47:48 4 just on a flat display, or was it on a flat display that
10:47:53 5 had curvature at the edges?

10:47:56 6 A. I think the first samples were on flat --

10:48:02 7 Q. Okay.

10:48:02 8 A. -- flat displays.

10:48:09 9 Q. And who did you work with on making those first
10:48:17 10 displays using copper?

10:48:18 11 A. The manufacturing was done in the U.K. by a U.K.
10:48:29 12 company, CIT. And I think we would have just made the
10:48:42 13 prototypes ourselves at that time initially.

10:48:44 14 Q. What -- what did U.K., the CIT company, do?

10:48:52 15 A. They were the manufacturing partner for us, for our
10:48:55 16 technology.

10:48:57 17 Q. So CIT could print copper lines on substrates?

10:49:03 18 A. Yes.

10:49:03 19 Q. And what was the substrate that you used for the first
10:49:14 20 touch sensor, flexible touch sensors using copper that you
10:49:18 21 came up with?

10:49:21 22 A. It would have been PET.

10:49:23 23 Q. PET?

10:49:24 24 A. PET.

10:49:26 25 Q. Okay. Do you recall whether they -- whether CIT had

10:49:31 1 the ability to print copper lines on flexible substrates,
10:49:36 2 whether they were clear or not?
10:49:37 3 A. Yes, I think they -- they could.
10:49:41 4 Q. And was that one of the attractions to CIT for Atmel?
10:49:46 5 A. That's correct.
10:49:46 6 Q. And why was being able to print on flexible substrates
10:49:52 7 an attraction?
10:49:55 8 A. You know, we wanted roll-to-roll manufacturing. You
10:50:01 9 know, we wanted to be a flexible material. So that's why
10:50:10 10 we -- you know, we sampled these companies.
10:50:14 11 Q. Okay. And that was before -- at some point with Atmel,
10:50:17 12 you transferred to the U.S.; is that correct?
10:50:20 13 A. Yes. That's correct.
10:50:21 14 Q. So this -- let me focus now on the time you were still
10:50:25 15 in the U.K.
10:50:27 16 A. Okay.
10:50:27 17 Q. If -- what I'm asking, for example, is if I -- if I
10:50:33 18 have a piece of paper in front of me, and if -- if I
10:50:36 19 printed copper lines on it to make a touch sensor, did you
10:50:40 20 ever pick up the thing and -- and it just sort of bent or
10:50:46 21 flexed sort of like I'm doing with the paper?
10:50:50 22 A. Yes.
10:50:50 23 Q. If you recall.
10:50:52 24 A. Yes, of course, we had -- yeah, we handled material.
10:50:56 25 Yes.

10:50:56 1 Q. And it could flex, it curved?

10:51:01 2 A. That's right.

10:51:02 3 Q. All right.

10:51:03 4 A. It's like a piece of paper when it's manufactured.

10:51:05 5 Q. Okay. And that was one of the benefits of copper, that

10:51:08 6 it wouldn't peel off when you -- when it flexed like that,

10:51:14 7 correct?

10:51:14 8 A. It is correct. But ITO can also flex when it's handled

10:51:21 9 before it's manufactured like that on a piece of sheet.

10:51:25 10 Q. What I -- what I was asking is, at the time that you

10:51:30 11 were working with CIT on these flexible copper touch

10:51:37 12 sensors where the copper wiring was put on PET --

10:51:40 13 A. Right.

10:51:41 14 Q. -- did you or anyone working with you consider the

10:51:46 15 possibility of being able to use that kind of a flexible

10:51:58 16 touch sensor and sort of curve it at the edges or curve it

10:52:00 17 in the middle or curve it somehow and use it in that curved

10:52:04 18 sense?

10:52:05 19 A. I don't think so, no.

10:52:12 20 Q. Well, let me ask you this: Just from a technical

10:52:18 21 sense, once you have a flexible substrate where you can

10:52:25 22 print copper wires, that, as you said, when you would pick

10:52:29 23 it up would flex like a piece of paper, would it -- would

10:52:33 24 it be relatively obvious that one of the things you could

10:52:38 25 do with it is to wrap it around surfaces? From a technical

10:52:45 1 standpoint. That's not a great technological leap, is it?

10:52:49 2 A. Yeah, I'm not sure. I can't quantify whether it's a
10:52:54 3 big leap or not.

10:52:54 4 Q. And what were the line widths, if you recall,
10:53:01 5 approximately, that the copper lines were?

10:53:03 6 A. It would have been quite wide at the time. 7 micron,
10:53:16 7 you know, 9 micron initially.

10:53:24 8 Q. And by -- was that approximately the size of the PET
10:53:29 9 and the copper lines that you were working with at the time
10:53:32 10 you left England to come to the United States?

10:53:37 11 A. I think we might have already reduced it by that time.

10:53:41 12 Q. Based on your overall experience with flexible touch
10:53:51 13 sensors, was -- is there anything about the copper-based
10:53:55 14 flexible touch sensors you were working on in England for
10:53:57 15 Atmel, was there anything about them, in your view, that
10:54:05 16 would have made them unusable to wrap around a curved
10:54:10 17 surface of a display?

10:54:12 18 A. That would have made them unusable? No.

10:54:27 19 Q. It wouldn't have been -- you couldn't have used what
10:54:35 20 you were working with when you left England to wrap around
10:54:39 21 a curved surface, in your view?

10:54:43 22 A. I think they could be wrapped, but we never checked --
10:54:47 23 we never qualified that process. Yeah.

10:54:49 24 Q. When you transferred to Atmel in the U.S., was that at
10:54:55 25 their headquarters in San Jose?

10:54:58 1 A. Yes.

10:54:59 2 Q. And it was flexible, the substrate?

10:55:05 3 A. Before it was -- yeah, during manufacturing, it was

10:55:09 4 roll-to-roll manufacturing. So it was flexible.

10:55:13 5 Q. Actually, when you say roll-to-roll, can you describe

10:55:17 6 the process that -- that the copper wiring was put on the

10:55:24 7 rolls of PET?

10:55:25 8 A. Oh, sure. Sure.

10:55:27 9 So our process was, we had a roll of PET. But it

10:55:41 10 was a special-treated PET, not just bare PET, but had some

10:55:46 11 special treatment. And we would put a -- a base coat on

10:55:53 12 the PET.

10:55:55 13 So it's a coated material, coated PET. Then we

10:55:59 14 would expose the circuit pattern using an exposure machine.

10:56:11 15 And -- and then we would develop. And where -- where we

10:56:15 16 did not expose the circuit, we would wash away during the

10:56:22 17 develop process.

10:56:23 18 So we would end up with -- after the develop

10:56:30 19 process, we would end up with -- you know, you could say

10:56:32 20 like pedestals where we wanted the circuit to be.

10:56:37 21 And then in the next process, we would plate with

10:56:47 22 copper on those pedestals. Then we would test and apply a

10:56:54 23 further coating, a protective coating, as the roll-to-roll,

10:57:00 24 yeah.

10:57:00 25 Q. And the PET, when you say it was a roll, was it a roll

10:57:05 1 like a roll of toilet paper -- not toilet paper, but paper
10:57:10 2 towels?

10:57:10 3 A. Yes.

10:57:12 4 Q. Okay.

10:57:13 5 A. Yes, yes.

10:57:14 6 Q. And that would unroll and go through the machine that
10:57:17 7 printed the circuit on it, correct?

10:57:18 8 A. Exactly, yes.

10:57:19 9 Q. And -- and then when it was finished, would it be
10:57:23 10 re-rolled up with the circuit on it?

10:57:25 11 A. That's correct.

10:57:25 12 Q. Okay. So it went from roll-to-roll?

10:57:31 13 A. That's correct.

10:57:32 14 Q. So -- and when did you first begin using that kind of
10:57:41 15 roll-to-roll process? Was that something you did in
10:57:43 16 England?

10:57:43 17 A. We did.

10:57:44 18 Q. At CIT?

10:57:45 19 A. Yes. Right from the beginning, it had to be
10:57:48 20 roll-to-roll for it to be mass-produceable.

10:57:58 21 Q. So in that case, the printed circuit on the PET would
10:58:03 22 actually be in a circle, so to speak?

10:58:09 23 A. Yeah. Wrapped, yes.

10:58:14 24 Q. We can take that down.

10:58:16 25 Okay. Before the break, I'd asked you some

10:58:25 1 questions about the -- how the copper was printed on the
10:58:29 2 PET substrate, and you said it went from one roll through a
10:58:34 3 lithography. Can I call it a lithography process, and then
10:58:39 4 rolled up again?

10:58:40 5 A. Correct. Right.

10:58:41 6 Q. Yeah. Okay. When -- when the printed PET was
10:58:47 7 delivered to Atmel, in what form was it delivered? Rolls
10:58:51 8 of some sort?

10:58:51 9 A. This is at the time of CIT?

10:59:01 10 Q. Yeah, at the time of CIT first.

10:59:05 11 A. Okay. So I'm not hundred percent because at some point
10:59:27 12 it was cut into panels. At the beginning, it might have
10:59:38 13 been delivered in a roll form.

10:59:41 14 Q. And do you recall just approximately what the size of
10:59:45 15 the roll was, like what the inner radius of what it was and
10:59:50 16 the outer radius?

10:59:59 17 A. It's multiple inches. I -- I don't know. It's -- it
11:00:06 18 might have been 5-inch, something like that, the inner
11:00:10 19 radius. Sorry, inner diameter?

11:00:15 20 Q. Yeah.

11:00:15 21 A. I shouldn't -- yeah, I shouldn't guess that. It's
11:00:20 22 multiple inches, but I -- I'm not sure exactly.

11:00:29 23 Q. Okay. And the -- the copper wiring, whatever that
11:00:33 24 inner diameter was, didn't crack or peel away from the PET,
11:00:37 25 correct?

11:00:37 1 A. No, that was our standard product. If it did, this
11:00:46 2 would have been a defect.

11:00:48 3 Q. If it had cracked or peeled, correct?

11:00:50 4 A. If it -- if it cracked or peeled, this would be a
11:00:55 5 defect.

11:00:57 6 Q. Okay. And I'm just going to ask you from a -- I guess

11:01:03 7 a technical or maybe a non-technical standpoint, just

11:01:07 8 looking at that 6-inch roll, it would be pretty clear that

11:01:13 9 the copper-coated flexible substrate could at least wrap
11:01:20 10 around a curved surface of that dimension, correct?

11:01:24 11 A. That's -- that's how it was manufactured.

11:01:27 12 Q. Yeah. And it would be pretty clear you could wrap it

11:01:31 13 around the same thing in use, correct?

11:01:33 14 A. It was -- yeah, it was manufactured in that form.

11:01:39 15 It's -- it's meant to be robust during manufacturing at
11:01:43 16 high yield.

11:01:43 17 Q. And also meant to be robust when it's used in a

11:01:51 18 finished product, correct?

11:01:53 19 A. It is.

11:01:53 20 Q. And it -- it was pretty robust when it was wrapped
11:01:59 21 around a 6 -- a 6-inch core, correct?

11:02:02 22 A. Yes.

11:02:03 23 Q. Mr. Yilmaz, you can see that this is a patent
11:02:09 24 application for a capacitive position sensor?

11:02:14 25 A. Yes.

11:02:15 1 Q. And this was filed, I believe, in 2009.

11:02:26 2 If we can go down.

11:02:32 3 A. Yeah.

11:02:32 4 Q. Correct? April 10, 2009?

11:02:37 5 A. Yes.

11:03:11 6 Yeah, I remember this one.

11:03:13 7 Q. Is -- is there a particular reason you remember this

11:03:15 8 one?

11:03:16 9 A. It was a clever idea.

11:03:20 10 Q. It was a what idea?

11:03:24 11 A. Clever.

11:03:25 12 Q. Okay. And what was the clever idea about it?

11:03:28 13 A. It was actually quite neat. It's -- it's a way of

11:03:34 14 spatial interpolation on the sense lines.

11:03:41 15 Q. And it -- it was -- it's talking about using the touch

11:03:46 16 sensor that's described in this patent on top of a display

11:03:52 17 panel, correct?

11:03:53 18 A. The touch sensor on to a display module.

11:04:03 19 Q. Well, Paragraph 21 is -- in the patent is saying, one

11:04:08 20 important combination --

11:04:09 21 A. Yes.

11:04:11 22 Q. -- of a touch sensor is to use it with a display

11:04:14 23 module, correct?

11:04:15 24 A. Yes, I see that. Yes.

11:04:16 25 Q. And it then says it can likely be made of ITO, correct?

11:04:21 1 A. Yes.

11:04:21 2 Q. Let's look at Paragraph 24.

11:05:03 3 A. Okay.

11:05:04 4 Q. There it's talking about the touch sensor with the

11:05:08 5 drive and sense electrodes, correct?

11:05:11 6 A. Yes.

11:05:11 7 Q. Why don't we look at Paragraph 75.

11:05:20 8 And you'll see there that one of the substrates on

11:05:24 9 which the touch sensor could be -- that the circuitry of

11:05:59 10 the touch sensor could be mounted was PET?

11:06:03 11 A. Yes, I see that.

11:06:05 12 Q. And was the PET at this time period flexible?

11:06:11 13 A. Yes.

11:06:16 14 Q. Okay. Why don't we go down and look at Paragraph 120.

11:06:26 15 In the middle of that paragraph -- you can take

11:06:43 16 your time to review the whole paragraph if you'd like --

11:06:47 17 there's a statement that says: The electrodes comprising

11:06:52 18 the electrode pattern. And that's the sense and drive

11:06:56 19 electrodes, correct?

11:06:57 20 A. Electrodes comprising the electrode pattern. Yes.

11:07:04 21 Q. Could be indium tin oxide, ITO?

11:07:08 22 A. Yeah.

11:07:09 23 Q. And it also says the substrate could be used with

11:07:14 24 materials such as copper, correct?

11:07:17 25 A. Yes.

11:07:19 1 Q. Okay. And both ITO and copper are flexible, but copper
11:07:24 2 is -- is more flexible than ITO, correct?
11:07:28 3 A. Correct.
11:07:30 4 Q. Okay. Let's look at 155 and 156.
11:08:12 5 Let me know when you've finished reviewing that.
11:08:18 6 A. Okay.
11:08:18 7 Q. And in there, it's -- it's talking again about the
11:09:16 8 touch sensor, correct? Generally?
11:09:21 9 A. Yeah.
11:09:23 10 Q. And in -- in that paragraph, it's -- it's talking about
11:09:26 11 the drive and sense electrodes are made up of thin wires or
11:09:31 12 a mesh of wire, correct?
11:09:32 13 A. Yes, I see that.
11:09:38 14 Q. Is Figure 17 a mesh pattern?
11:09:40 15 A. I mean, yeah, you could call it mesh, yeah.
11:10:00 16 Q. Well, in fact, in the paragraph we read, it was
11:10:03 17 referred to as a mesh, correct?
11:10:04 18 A. Yes.
11:10:07 19 Q. Okay. Let's look at Figure 18 a moment while you're
11:10:10 20 there.
11:10:11 21 And that mesh pattern, as examples there, could be
11:10:26 22 used as a touch sensor on a laptop computer?
11:10:34 23 A. Yes.
11:10:34 24 Q. And do you recall that in -- in the Exhibit 22, that
11:10:42 25 this patent application, this published patent application,

11:10:45 1 that you also described a -- a way for providing circuitry
11:10:56 2 that would be able to control or read the output from the
11:11:02 3 touch sensor?

11:11:06 4 A. The touch controller chip?

11:11:11 5 Q. Yes.

11:11:12 6 A. Yes.

11:11:13 7 Q. Well, this patent described a -- an overall system that
11:11:18 8 included a touch sensor on a flexible substrate with copper
11:11:26 9 wiring in a mesh pattern, correct?

11:11:31 10 A. Yes.

11:11:31 11 Q. That could be used on a cell phone or a computer
11:11:36 12 display?

11:11:37 13 A. Yes.

11:11:38 14 Q. And it says that copper metal mesh can be used on a PET
11:11:46 15 substrate, correct?

11:11:47 16 A. That's correct.

11:11:48 17 Q. And at the time that this was filed, 2009, PET on which
11:11:57 18 you were putting copper metal mesh was flexible, correct?

11:12:00 19 A. Yes.

11:12:08 20 Q. And -- and the metal mesh had sense and drive
11:12:15 21 electrodes on opposite sides of that substrate, correct?

11:12:18 22 A. Yes.

11:12:24 23 Q. But -- but what you -- just -- what kind of a touch
11:12:29 24 sensor in a general sense that's being described in
11:12:31 25 Exhibit 22 and in the '311 patent is a copper-based touch

11:12:37 1 sensor that can be printed on a flexible PET substrate,
11:12:45 2 correct?
11:12:45 3 A. Yes.
11:12:52 4 Q. The technical description -- one of the technical
11:12:56 5 descriptions in Exhibit 22, the patent application, is the
11:13:00 6 use of a copper-based touch sensor on a flexible PET
11:13:04 7 substrate with drive and sense electrodes on opposite sides
11:13:08 8 of the substrate.
11:13:13 9 A. Uh-huh.
11:13:14 10 Q. And in the Figures 18, 19, and 20 of Exhibit 22, you're
11:13:20 11 showing the use of that touch sensor on flat surfaces,
11:13:24 12 correct?
11:13:24 13 A. Right. Yes.
11:13:25 14 Q. And is the idea of wrapping it around technologically
11:13:35 15 the difference between what's described and shown in
11:13:38 16 Exhibit 22 and what's described in the '311 patent, from a
11:13:44 17 technical standpoint?
11:13:46 18 A. So this -- this -- what do you call it, this -- this
11:13:58 19 document that we are reviewing right now --
11:14:00 20 Q. It's a published patent application.
11:14:02 21 A. Yeah. It is describing an invention on a metal mesh
11:14:12 22 touch sensor, but a very early version of that.
11:14:17 23 Q. Right.
11:14:18 24 A. It's not identical to what we did at a later time.
11:14:23 25 This would have been very low yield and might not have

11:14:28 1 qualified for flexible -- or wrap-around application.

11:14:35 2 Q. Okay. But did -- when you touched the sensor in the

11:14:39 3 proto -- the -- the ones that you were -- you were making

11:14:47 4 at the time that you filed Exhibit 22, would the sensor

11:14:53 5 pick up the touch enough to be able to control some device

11:14:56 6 or some -- to control something?

11:14:58 7 A. So we might not have made this prototype, even, for --

11:15:19 8 with metal mesh. So I would be guessing if I said it

11:15:29 9 would -- you know, this particular design would work.

11:15:33 10 But what -- what we were doing or what -- you

11:15:37 11 know, what was done here is that they've taken ITO design

11:15:43 12 and created a metal mesh version of it.

11:15:45 13 And I don't know if that makes sense.

11:15:50 14 Q. Yeah. Using copper, correct?

11:15:51 15 A. Using copper, basically just traced around and then

11:15:57 16 just did some in-fill -- filling -- filling the -- you

11:16:01 17 know, the areas of the electrode with some --

11:16:05 18 Q. Let me ask you -- okay. I'm sorry. Go ahead.

11:16:08 19 A. Some diagonal lines.

11:16:10 20 So I -- I don't think we -- we ever tested this

11:16:14 21 particular design with -- with, like, actual physical

11:16:19 22 sensor.

11:16:20 23 Q. Well, did you make any -- did you make the sensor

11:16:27 24 itself and a controller on a flexible PET substrate enough

11:16:31 25 to know that it would detect a touch, and the touch could

11:16:36 1 then be used to control something?

11:16:38 2 A. So I think we might not have made this particular
11:16:47 3 sensor, this is a metal mesh, and with this kind of design.

11:16:54 4 Q. Okay. The -- the embodiment -- an embodiment described
11:16:58 5 in the -- in Exhibit 22 is a copper touch sensor with sense
11:17:02 6 and drive electrodes on opposite side of a PET flexible
11:17:14 7 substrate for use in a mobile phone, correct?

11:17:18 8 That's an embodiment that we just saw was

11:17:22 9 described in various places in the patent, correct?

11:17:25 10 A. Yes.

11:17:26 11 Q. Atmel produced a product called XSense at one point,
11:17:33 12 correct?

11:17:33 13 A. Yes.

11:17:33 14 Q. That's what they went to market with?

11:17:38 15 A. That's correct.

11:17:43 16 Q. All right. The XSense sensor was a copper-based touch
11:17:49 17 sensor on a flexible PET substrate, correct?

11:17:51 18 A. Yes.

11:17:53 19 Q. And you had -- by the time you were commercializing,
11:18:03 20 the XSense technology had used that flexible touch sensor
11:18:09 21 to -- to go around the curved edges of the -- to go -- to
11:18:15 22 cover the curves of a curved display, correct?

11:18:19 23 ATTORNEY: Objection as to form.

11:18:23 24 A. Of a curved display?

11:18:29 25 Q. Had you done so?

11:18:33 1 A. I don't think there were any curved displays at the
11:18:40 2 time.

11:18:40 3 Q. Okay. And was that up through the time that Atmel sold
11:18:43 4 the XSense technology to Uni-Pixel?

11:18:55 5 A. Yes, I think I've not -- I had not seen that curved
11:19:01 6 display up to that point.

11:19:03 7 Q. And is it correct that XSense hadn't made a flexible
11:19:09 8 copper-based touch sensor that -- that it had placed over a
11:19:22 9 curved display?

11:19:24 10 ATTORNEY: Objection as to form.

11:19:29 11 A. Yes, I -- I don't think we had seen a curved display at
11:19:43 12 the time.

11:19:43 13 Q. And am I correct that up until the time that Atmel sold
11:19:47 14 the XSense technology to Uni-Pixel, Atmel had not actually
11:19:54 15 taken a copper-based touch sensor on a PET flexible
11:20:03 16 substrate and wrapped it around the edge of a mobile phone
11:20:10 17 display?

11:20:11 18 A. We certainly created prototypes and wrapped -- wrap
11:20:25 19 around multiple demo systems, mobile phones. So we have --
11:20:32 20 we have that.

11:20:33 21 Q. And how -- how long after the patent application was
11:20:39 22 filed did you have those prototypes?

11:20:41 23 A. I mean, the curve -- curved, we -- we started with very
11:20:48 24 early, even maybe before the patent application, we had put
11:20:53 25 actually curved sensors around a display.

11:20:57 1 Q. And was it after the patent was filed, which is October
11:21:03 2 28, 2011, that Atmel first made a prototype that wrapped
11:21:13 3 around the edges, for example, of a perpendicular display?

11:21:18 4 A. We had prototypes, I believe, in July 2011, July or
11:21:34 5 August, of -- of our touch sensor wrapped around.

11:21:40 6 Q. And you think that was July or August?

11:21:43 7 A. Yes. That was the -- the prototyping we did to develop
11:21:48 8 the technology.

11:21:48 9 Q. And did the -- did that prototype work?

11:21:58 10 A. Yes, we test it.

11:22:00 11 Q. And -- and when I say -- when you say it worked, what
11:22:05 12 do you mean?

11:22:05 13 A. Functionally. We did functional testing.

11:22:11 14 Q. And by that, you mean you could touch the sensor and --
11:22:15 15 and get a readout as to where that touch occurred?

11:22:19 16 A. Yes.

11:22:19 17 Q. And were you able -- after developing the flexible
11:22:30 18 touch sensor of the type described in the '311 for a curved
11:22:35 19 surface, were you later able to develop a working model of
11:22:44 20 a touch sensor of the type described in the '311 for a
11:22:46 21 display that had perpendicular sides, where the touch
11:22:54 22 sensor covered the top and over the edge and down the side?

11:22:57 23 A. Yes.

11:22:57 24 Q. And when was that?

11:22:59 25 A. I'm not hundred percent sure of the date.

11:23:16 1 Q. Was it a -- if you've completed the first project near
11:23:23 2 the end of June or early July, did -- was the project of
11:23:29 3 trying to wrap it around a display that was flat and
11:23:36 4 extended down the sides done two months later, three months
11:23:42 5 later, one month later? Do you know, anything other than
11:23:46 6 would be a guess?

11:23:46 7 A. I think it would be a guess.

11:23:49 8 Q. At any time after June 21st, did you have a -- a
11:23:53 9 working device that had a display that was curved, the
11:24:02 10 display itself was curved, where the touch sensor overlaid
11:24:10 11 the curved display?

11:24:12 12 A. No.

11:24:13 13 Q. Did you have such a prototype prior to the time October
11:24:19 14 28th, 2011, that you filed the patent application for the
11:24:24 15 '311?

11:24:24 16 A. With a curved display?

11:24:29 17 Q. Yes.

11:24:30 18 A. No, we did not have access to curved display.

11:24:33 19 Q. When was the first time you had a working model of a
11:24:37 20 flexible substrate of the type described in the '311 patent
11:24:41 21 that was able to fit over a curved display?

11:24:47 22 A. So the -- the touch sensor, or the touch panel that we
11:24:59 23 created, could have fit over a curved display. We made a
11:25:07 24 demo, in fact, for it, as well.

11:25:10 25 But -- yeah, but we never actually built it into a

11:25:14 1 system with a curved display. We did not have access.

11:25:17 2 Q. So you never had access to a curved display?

11:25:22 3 A. That's correct.

11:25:23 4 Q. But you -- you -- you could -- you tested the flexible
11:25:34 5 touch sensor as it was flexed, being flexed; is that
11:25:39 6 correct?

11:25:39 7 A. That's correct. Over a -- over a curved display or
11:25:43 8 even a flat display.

11:25:44 9 Q. Well, you said -- I think you said you didn't have a
11:25:47 10 curved display?

11:25:48 11 A. That's correct. It's as if -- so we -- we tested our
11:25:51 12 technology of it, you know, bending, you know, over -- in
11:26:00 13 actual -- you know, it doesn't actually make a difference
11:26:04 14 whether it's a flat display or curved display. From our
11:26:08 15 point of view that we are able to bend our sensor, the
11:26:14 16 difference would be we extend the viewable area. If it was
11:26:18 17 a curved display, we extend the viewable area to the edge.

11:26:22 18 Q. Okay. Let me see if I understand now.

11:26:28 19 So -- so the work you were doing up to the time
11:26:30 20 you filed the '311 patent was with a flat display, correct?

11:26:36 21 A. That's correct.

11:26:36 22 Q. And you made touch sensors that went from one edge of
11:26:43 23 the touch display on the top to the other edge, correct?

11:26:47 24 A. One edge -- one edge of the display to the other edge.

11:26:56 25 Q. Yeah.

11:26:57 1 A. You mean the flat area?

11:26:59 2 Q. The flat area.

11:27:00 3 A. That and -- yes, but also over the edge, as well.

11:27:05 4 Q. Okay. And am I correct that prior to the time you

11:27:12 5 filed the '311 patent, you did not have access to a curved

11:27:17 6 display, correct?

11:27:18 7 A. Yes.

11:27:19 8 Q. And so you never made a touch sensor which covered the

11:27:30 9 top of a display and the side of a display, correct?

11:27:35 10 ATTORNEY: Objection, form.

11:27:38 11 A. It -- I mean, our sensor -- we did not have the curved

11:27:55 12 display.

11:27:55 13 Q. Well, you were making touch sensors that were

11:27:59 14 flexible --

11:28:00 15 A. Yes.

11:28:01 16 Q. -- when you were -- when you were working for Atmel in

11:28:05 17 England, right?

11:28:06 18 A. They were -- they were flexible.

11:28:10 19 Q. Okay. But -- but looking back at it, it's true, isn't

11:28:14 20 it, that the touch sensors that you were working on in

11:28:18 21 England for Atmel were flexible enough that you could have

11:28:23 22 wrapped them around the edges of a flat display?

11:28:30 23 A. The designs that we had might not have been optimized

11:28:36 24 for that. So we -- we didn't further optimize it. But it

11:28:42 25 was flexible.

11:28:42 1 Q. I'm not asking if you optimized it. I'm asking you if,
11:28:50 2 looking back at it now, given the work you did at Atmel
11:28:56 3 with flexible touch sensor substrates, that, in fact, the
11:29:08 4 flexible touch sensor substrates that you were working on
11:29:11 5 in England with Atmel, you could have done the same thing
11:29:17 6 that you did later on, as we've discussed in the context of
11:29:21 7 Exhibit 18, and taken that flexible display and extended it
11:29:27 8 beyond the edges of the flat display?

11:29:34 9 It may not have been as optimum, but it would have
11:29:39 10 worked?

11:29:40 11 A. We did not test the functionality, but it is -- it is
11:29:45 12 probable.

11:29:46 13 Q. At some point, did you consult for a company, Houlihan
11:29:54 14 Lokey?

11:30:04 15 A. Houlihan Lokey? Yes. Yes, I did.

11:30:09 16 Q. Do you recall speaking with a patent attorney working
11:30:14 17 on behalf of the company regarding the filing of the
11:30:18 18 application that led to the '311 patent?

11:30:23 19 A. To the patent attorney. At the time?

11:30:31 20 Q. Yes, sir.

11:30:31 21 A. Speaking to them at the time?

11:30:36 22 No, I -- I could not remember. It's too far back.

11:30:42 23 Q. Mr. Yilmaz, earlier today, you discussed some of the
11:30:48 24 prototypes that you were involved with in creating on
11:30:54 25 behalf of Atmel's customers, specifically Nokia.

11:30:57 1 Do you remember that?

11:30:58 2 A. Yes.

11:31:00 3 ATTORNEY: And, for the record, this is the

11:31:01 4 document marked as Yilmaz 18.

11:31:09 5 Q. Do you remember talking about the project that's

11:31:11 6 discussed in the first paragraph of this email that we're

11:31:14 7 looking at on the screen right now?

11:31:17 8 A. Today?

11:31:18 9 Q. Yes.

11:31:19 10 A. Yes.

11:31:19 11 Q. The project that is being discussed in this first

11:31:29 12 paragraph is the Jolle project. Would that be fair to say?

11:31:32 13 A. Yes.

11:31:32 14 Q. And how can you tell?

11:31:37 15 A. That was the curved cover that we were working on.

11:31:47 16 Q. Do you see in the middle part of the screen right now

11:31:53 17 there's some information there about who sent the email and

11:31:58 18 what time, subject, and then the attachments to the email?

11:32:02 19 Do you see that?

11:32:03 20 A. Yes.

11:32:03 21 Q. Under the -- well, next to the term "attachments," what

11:32:11 22 do you see there?

11:32:12 23 A. Jolle glass touch, et cetera, zip file.

11:32:15 24 Q. I'd like to ask you about the number that appears right

11:32:20 25 after Jolle glass touch. I'll read it as 20110428.

11:32:27 1 Do you see that?

11:32:28 2 A. Yes.

11:32:28 3 Q. Does that indicate to you that the date of the -- at

11:32:34 4 least the file that's being attached is, let's say,

11:32:40 5 April 28th, 2011?

11:32:42 6 A. Yes.

11:32:44 7 Q. I'd like to show you a document that has a Bates stamp

11:32:47 8 of Yilmaz_00000002. And I'll bring it up on the screen

11:32:59 9 right now.

11:33:13 10 A. Okay.

11:33:13 11 Q. Mr. Yilmaz, do you see what I'm looking at on the

11:33:17 12 screen right now? It's in Adobe Acrobat. It's a document

11:33:21 13 with some blue text and some black text?

11:33:25 14 A. Yes.

11:33:25 15 Q. Mr. Yilmaz, you now have some control.

11:33:28 16 And I'd like to ask you first, do you recognize

11:33:30 17 this document?

11:33:31 18 A. Yes.

11:33:31 19 Q. What is it?

11:33:32 20 A. It is a data sheet we created to give to customers.

11:33:41 21 Q. So, Mr. Yilmaz, do you recognize the same document on

11:33:45 22 the screen right now, just in native format?

11:33:48 23 A. Yes.

11:33:52 24 Q. I'd like to scroll down to a particular portion of the

11:33:54 25 document and just ask you to confirm something. And, for

11:33:59 1 the record, I am scrolling down to Page 2 of the PDF. And
11:34:22 2 I'll zoom in right now.

11:34:24 3 And ask you, Mr. Yilmaz, to take a look at the
11:34:29 4 description -- or, rather, the text underneath the words,
11:34:34 5 Product Description and Applications, which should be
11:34:38 6 roughly near the middle of your screen.

11:34:40 7 Do you see that?

11:34:41 8 A. Yes.

11:34:41 9 Q. Can you just take a moment to read through that
11:34:44 10 paragraph and let me know what it's saying.

11:34:50 11 A. So it's describing roll-to-roll process with PET
11:35:22 12 substrates. It is describing that it can be bent or
11:35:29 13 laminated on curved surfaces. 2.5D product designs. Yeah.

11:35:45 14 Q. My question to you now is, what exactly does 2.5D mean?
11:35:50 15 If you could give me a quick answer?

11:35:54 16 A. Right. 2.5D, as opposed to 3D, is something -- a
11:36:02 17 surface that you can laminate without stretching -- or,
11:36:12 18 actually, let me try this way.

11:36:14 19 It's a -- it's a curvature in one direction, as
11:36:23 20 opposed to multiple directions where you would have, like
11:36:28 21 on a ball, for example, where you can laminate a sheet.

11:36:33 22 Q. Was the Jolle project you were working on with Nokia a
11:36:42 23 2.5D design or 3D?

11:36:47 24 A. 2.5.

11:36:48 25 Q. Mr. Yilmaz, I'd like to show you another document,

11:36:51 1 which I'll mark as Yilmaz Exhibit 32.

11:36:55 2 I'd like to you take a look at this document, sir.

11:37:00 3 And I'll share control with you right now, and ask you once

11:37:04 4 you know, what is it?

11:37:08 5 A. Yeah. This would have been number of sensors we

11:37:25 6 delivered for a particular project and a particular

11:37:28 7 customer.

11:37:29 8 Q. Could I ask you to take a look at Row 5, which is

11:37:35 9 Priority 1 in Column A?

11:37:38 10 A. Yes.

11:37:38 11 Q. Do you see that?

11:37:40 12 Do you see in Column C on Row 5, the project name

11:37:44 13 is Jolle?

11:37:45 14 A. Yes.

11:37:45 15 Q. So this row relates to the Jolle project that you were

11:37:50 16 discussing earlier today in -- in the deposition?

11:37:55 17 A. That's correct.

11:37:55 18 Q. And do you recall saying that prototypes were, in fact,

11:38:01 19 fabricated and delivered in the Jolle project?

11:38:05 20 A. Yes.

11:38:06 21 Q. Can you just take a look at the rest of the information

11:38:09 22 in the row and just confirm that for me. And let me know

11:38:13 23 if your answer changes.

11:38:16 24 A. Sorry. Can you ask your question again?

11:38:19 25 Q. Sure. Can you just confirm what you just said, after

11:38:24 1 having looked at the rest of the information in Row 5 of
11:38:28 2 the Excel document?

11:38:31 3 A. Yes. Yes, we have got layouts, we have got number of
11:38:40 4 samples that we are shipping. Layout complete, mask
11:38:46 5 delivery. And this is the shipment date.

11:38:49 6 Q. Under Column F, which has I believe a label CAD
11:38:55 7 Engineer, you can see the name Carl.

11:38:57 8 Do you see that?

11:38:57 9 A. Yes.

11:38:58 10 Q. Who is Carl?

11:39:00 11 A. This is a CAD engineer in the U.K.

11:39:08 12 Q. Does he have a last name?

11:39:10 13 A. Carley.

11:39:13 14 Q. Carl Carley?

11:39:16 15 A. Yes.

11:39:16 16 Q. Did he work for Nokia?

11:39:17 17 A. No. Atmel.

11:39:24 18 Q. Carl Carley worked for Atmel?

11:39:27 19 A. That's correct.

11:39:27 20 Q. And, just for the record, the term "CAD," C-A-D, what
11:39:39 21 does that stand for?

11:39:40 22 A. Computer-aided design.

11:39:44 23 Q. I'd like to show you that document -- or, rather, let
11:39:47 24 me first just say, let me pull up on the screen what's been
11:39:53 25 Bates stamped as Yilmaz 21.

11:39:55 1 So, Mr. Yilmaz, I've pulled up that native
11:39:59 2 document -- I've opened it, rather, in a free step file
11:40:04 3 viewer called Step Viewer.

11:40:07 4 Well, first, let me ask a foundational question.

11:40:10 5 Do you know what a step file is?

11:40:13 6 A. Yes.

11:40:13 7 Q. And what is a step file?

11:40:15 8 A. It's a -- a 3D file, a 3D design file, one of the
11:40:21 9 formats.

11:40:22 10 Q. Have you -- or, rather, have you seen this -- have you
11:40:31 11 seen this document before?

11:40:32 12 A. Yes.

11:40:32 13 Q. And can you tell me when you have seen the document
11:40:35 14 before?

11:40:35 15 A. You provide it to me. Yes, I believe that was the
11:40:42 16 case.

11:40:42 17 Q. And do you know if this was -- this step file was
11:40:46 18 created by Mr. Carley?

11:40:47 19 A. I'm not sure. I think part of it might have been. Or
11:40:58 20 at least co-created.

11:41:00 21 Q. Starting from the bottom, actually, with Jolle Display
11:41:07 22 Foam, can you just tell me what that is? What does it
11:41:11 23 refer to?

11:41:11 24 A. It is the foam that seals this piece to the display.
11:41:20 25 So there's the seal between this piece and the display.

11:41:23 1 Q. And by "this piece," what do you mean?

11:41:29 2 A. You know, what we are seeing here. This is the touch

11:41:36 3 panel.

11:41:36 4 Q. Okay. Moving to this layer where -- where my cursor is

11:41:48 5 hovering, where it reads, Jolle touch, is that assembly,

11:41:54 6 A-S-S-Y?

11:41:54 7 A. It is.

11:41:54 8 Q. I'm going to expand that just so that you can see what

11:41:57 9 it is.

11:41:58 10 A. Yeah.

11:41:59 11 Q. Can you just tell me what the Jolle Touch Assembly

11:42:04 12 layer refers to?

11:42:05 13 A. That would be the touch sensor. It will be the FPC.

11:42:13 14 Yeah. It's -- it's the sensor and the FPC, and it looks

11:42:17 15 like there's a connector, as well, in there.

11:42:20 16 Q. What is the FPC?

11:42:22 17 A. FPC is another -- it's basically a connect --

11:42:36 18 connecting piece of flexible printed circuit board between

11:42:48 19 the touch sensor and could be the motherboard, for example.

11:42:51 20 Q. Okay. And I'll come back to -- to this layer. I'd

11:42:56 21 like to first ask you about the first layer in the list,

11:42:59 22 Jolle Glass Window.

11:43:02 23 A. Right.

11:43:03 24 Q. Do you see that?

11:43:03 25 A. Yes.

11:43:03 1 Q. Can you tell me what the Jolle Glass Window is?

11:43:08 2 A. It's the -- it's the cover glass.

11:43:11 3 Q. So I've just hovered my mouse cursor over Jolle Glass

11:43:20 4 Window. You can see the substantial portion of the model

11:43:23 5 just lit up in neon blue. The part that lit up in neon

11:43:27 6 blue, is that the Jolle Glass Window layer?

11:43:30 7 A. Yes.

11:43:30 8 Q. Okay. I'm going to hide the board-to-board connector

11:43:37 9 now. And next I'm going to ask you about the -- the Jolle

11:43:43 10 Touch Sensor Top Flex Element, where my mouse cursor has

11:43:50 11 hovered.

11:43:50 12 And, again, sir, if you -- at any point you want

11:43:53 13 to actually take control of my computer and, you know,

11:43:58 14 manipulate it yourself, just let me know. Can you tell me

11:44:01 15 what the Jolle Touch Sensor Top Flex Element is? In the

11:44:07 16 layout, it's the Jolle Touch Sensor Atmel. Do you see

11:44:07 17 that.

11:44:07 18 A. Yes.

11:44:08 19 Q. Can you tell me what that is?

11:44:11 20 A. That's the touch sensor.

11:44:13 21 Q. By "touch sensor," do you mean the PET film on which

11:44:24 22 the copper metal mesh lines are laminated on both sides?

11:44:28 23 A. Yes.

11:44:28 24 Q. I'm going to move my mouse to a portion of the layout.

11:44:37 25 Can you see where my mouse is hovering right here?

11:44:40 1 A. Yes.

11:44:40 2 Q. Do you see that there is, from your perspective, a

11:44:44 3 north/south line extending from where my mouse cursor is

11:44:49 4 hovering to the bottom of the model where my mouse is now

11:44:53 5 hovering?

11:44:53 6 A. Right. Yes.

11:44:54 7 Q. The side to the left of that line we discussed, is that

11:45:02 8 also part of the touch sensor?

11:45:04 9 A. Yes.

11:45:14 10 Q. Okay. Same question with the line on the other side of

11:45:18 11 the model where my mouse is hovering, which is, you know,

11:45:21 12 just -- it's asymmetrical design. But same question, is

11:45:26 13 the part to the right of the line where my mouse is

11:45:29 14 hovering now part of the touch sensor, as well, sir?

11:45:32 15 A. Yes.

11:45:32 16 Q. This line right here where my mouse is hovering, along

11:45:41 17 with the line that we just discussed on the other side of

11:45:44 18 the model where my mouse is hovering now, is that an

11:45:47 19 indication of where the radius of curvature of the design

11:45:51 20 begins, rather, on the left and right sides?

11:45:53 21 A. I believe so.

11:45:58 22 Q. Mr. Yilmaz, I'm also going to pull up something called

11:46:05 23 a GDS file for you in a moment.

11:46:07 24 But, first, can you tell me, do you know what a

11:46:10 25 GDS file is?

11:46:11 1 A. Yes. It's -- it's a file used by Cadence Software.

11:46:19 2 It's mainly used for semiconductor design, but it is also

11:46:26 3 used for metal mesh design by us.

11:46:29 4 Q. So, Mr. Yilmaz, looking at the screen now, can you

11:46:35 5 confirm for me that this is a -- let's say a GDS layout?

11:46:39 6 A. Yes, it is.

11:46:41 7 Q. And was this the GDS layout used for the fabrication

11:46:51 8 for the prototypes in the Jolle project?

11:46:54 9 A. Yes.

11:46:54 10 Q. How do you know that?

11:46:55 11 A. This was the Jolle1UP GDS file that we used to create

11:47:04 12 the touch sensors.

11:47:05 13 Q. And can you just tell me what we're looking at here on

11:47:09 14 the screen?

11:47:09 15 A. This is a portion of the touch sensor -- touch sensor

11:47:19 16 area. We are looking at the mesh lines in green and cut.

11:47:25 17 Q. The mesh lines are -- well, tell me, can you recall the

11:47:31 18 material used in the mesh lines for the Jolle project?

11:47:34 19 A. Yes. It would be copper.

11:47:39 20 Q. So, earlier, you were saying that one of the

11:47:43 21 technological, let's say, innovations of the '311 patent

11:47:53 22 was to have the metal mesh sensor configured to go over

11:47:58 23 the -- the -- the edges of the display. Is that -- is that

11:48:02 24 right?

11:48:03 25 A. Yes.

11:48:03 1 Q. Do you remember approximately when in the 2011 time
11:48:10 2 frame or 2010 time frame, or whatever time frame, that you,
11:48:14 3 Mr. Laub, or Mr. Shaikh actually came up with that concept?
11:48:24 4 Would it have been, let's say, before the company started
11:48:28 5 contemplating what it called the 2.5D product designs?

11:48:40 6 Mr. Yilmaz, speaking specifically with the month
11:48:49 7 January 2011 in mind, at the time had you or Mr. Laub or
11:48:59 8 Mr. Shaikh already been working on 2.5D designs, as we've
11:49:05 9 discussed?

11:49:06 10 A. With the Jolle project, we were working on the 2.5D
11:49:14 11 designs.

11:49:14 12 Q. Do you remember approximately when you, Mr. Shaikh, or
11:49:20 13 Mr. Laub first began working on the Jolle project?

11:49:22 14 A. I think it would have been early 2011.

11:49:33 15 Q. And bringing your attention back to the prototypes that
11:49:37 16 Atmel eventually created for the Jolle project, do you
11:49:41 17 recall approximately what time Atmel received those
11:49:44 18 prototypes?

11:49:48 19 A. I think it would have been around July or August.

11:49:51 20 Q. Do you recall the prototypes being, let's say,
11:49:59 21 functional?

11:50:11 22 A. I mean, they -- they would have been.

11:50:27 23 Q. And why would you think that?

11:50:29 24 A. Personally, I don't recall testing them. Yeah.

11:50:44 25 Q. Mr. Yilmaz, speaking again specifically about the

11:50:50 1 prototypes that you testified you received in the July 2011
11:50:56 2 time frame, do you have any reason to believe that they
11:51:00 3 would not be functional, let's say, for, you know, sensing
11:51:09 4 touch on the display panel around the module?

11:51:14 5 A. No.

11:51:14 6 Q. You remember the -- the series of CAD drawings you were
11:51:21 7 shown, Mr. Yilmaz?

11:51:22 8 A. Yes.

11:51:22 9 Q. And I think you described that that Jolle had -- was --
11:51:30 10 consisted of a curved glass under which was a curved
11:51:38 11 sensor; is that correct?

11:51:39 12 A. That's correct.

11:51:40 13 (Videoclip ends.)

11:51:44 14 THE COURT: Does that complete this witness by
11:51:46 15 deposition, counsel?

11:51:48 16 MS. FAIR: Yes, Your Honor.

11:51:48 17 THE COURT: All right. Ladies and gentlemen of
11:51:52 18 the jury, it's about 10 minutes until noon. I'm advised by
11:51:55 19 the clerk's office that your lunch is waiting for you in
11:51:58 20 the jury room. So we're going to break for lunch at this
11:52:01 21 time.

11:52:03 22 I'm going to ask you to take your juror notebooks
11:52:05 23 with you to the jury room over the lunch break. Please
11:52:09 24 follow all the instructions I've given you, of course,
11:52:12 25 including the one not to discuss the case with each other

11:52:15 1 or anyone else in any way.

11:52:16 2 It is about eight minutes until noon. We'll try
11:52:22 3 to reconvene promptly at 1:00 o'clock.

11:52:25 4 The jury is excused for lunch at this time.

11:52:27 5 COURT SECURITY OFFICER: All rise.

11:52:29 6 (Jury out.)

11:52:29 7 THE COURT: Counsel, so far, we've used two hours
11:53:07 8 and 50 minutes trial time this morning.

11:53:09 9 If you need further breakdowns, you can get them
11:53:15 10 from my staff over the lunch break. Until 1:00 p.m. when
11:53:19 11 we reconvene, we stand in recess.

11:53:22 12 COURT SECURITY OFFICER: All rise.

11:53:23 13 (Recess.)

01:06:51 14 (Jury out.)

01:06:52 15 COURT SECURITY OFFICER: All rise.

01:06:57 16 THE COURT: Be seated, please.

01:09:50 17 Counsel, I understand you've got recent updates on
01:09:57 18 your time from my staff. I also understand there may need
01:10:00 19 to be a correction in the record with regard to deposition
01:10:04 20 exhibits that were put forward earlier; is that correct,

01:10:09 21 Ms. Fair?

01:10:10 22 MS. FAIR: That's correct, Your Honor.

01:10:11 23 THE COURT: Would you go to the podium, please?

01:10:13 24 MS. FAIR: Yes, sir.

01:10:20 25 THE COURT: Tell me what we need to do and what we

01:10:22 1 have.

01:10:23 2 MS. FAIR: I misaligned up which PTX numbers go
01:10:27 3 with the Yilmaz exhibit number from the deposition, and so
01:10:30 4 I just wanted to get it corrected in the record since I
01:10:33 5 misspoke earlier.

01:10:34 6 THE COURT: All right.

01:10:34 7 MS. FAIR: Okay.

01:10:35 8 THE COURT: Let's go ahead and correct the record.

01:10:36 9 MS. FAIR: Thank you.

01:10:37 10 Yilmaz Exhibit No. 4 is PTX-003.

01:10:43 11 Yilmaz Exhibit 18 is PTX-701.

01:10:50 12 Yilmaz Exhibit 31 is PTX-702.

01:10:56 13 Yilmaz Exhibit 32 is PTX-690.

01:11:02 14 Yilmaz Exhibit 33 is PTX-692.

01:11:09 15 And Yilmaz Exhibit 34 is PTX-694.

01:11:14 16 And those are the exhibits that Plaintiff offered
01:11:18 17 through Mr. Yilmaz's deposition testimony.

01:11:21 18 THE COURT: All right. Any objection or problem
01:11:25 19 with that, Mr. Haslam?

01:11:26 20 MR. HASLAM: No, Your Honor.

01:11:30 21 THE COURT: All right. Is Plaintiff prepared to
01:11:32 22 call their next witness?

01:11:34 23 MR. FENSTER: We are, Your Honor, Mr. Credelle.

01:11:37 24 THE COURT: All right. Let's bring in the jury,
01:12:13 25 please.

01:12:13 1 COURT SECURITY OFFICER: All rise.

01:12:13 2 (Jury in.)

01:12:14 3 THE COURT: Welcome back from lunch, ladies and

01:12:15 4 gentlemen. Please have a seat.

01:12:16 5 Plaintiff, call your next witness.

01:12:24 6 MR. FENSTER: Your Honor, the Plaintiff calls

01:12:27 7 Mr. Thomas Credelle.

01:12:28 8 THE COURT: All right. Mr. Credelle will come

01:12:30 9 forward and be sworn, please.

01:12:49 10 (Witness sworn.)

01:12:50 11 THE COURT: If you'll come around, sir, and have a

01:12:52 12 seat on the witness stand.

01:13:02 13 THE WITNESS: Thank you.

01:13:03 14 THE COURT: All right. Mr. Fenster, you may

01:13:10 15 proceed with direct examination.

01:13:11 16 MR. FENSTER: Thank you, Your Honor.

01:13:11 17 Good afternoon, ladies and gentlemen.

01:13:11 18 THOMAS CREDELLE, PLAINTIFF'S WITNESS, SWORN

01:13:11 19 DIRECT EXAMINATION

01:13:15 20 BY MR. FENSTER:

01:13:15 21 Q. (By Mr. Fenster) Good afternoon, Mr. Credelle.

01:13:16 22 A. Good afternoon.

01:13:17 23 Q. Could you please introduce yourself to the jury?

01:13:19 24 A. My name is Thomas Credelle.

01:13:20 25 Q. And are you married, Mr. Credelle?

01:13:22 1 A. Yes, I am. In fact, I celebrate my 40th wedding
01:13:27 2 anniversary in two months. We hope COVID ends so we can
01:13:32 3 actually go someplace.

01:13:33 4 I have two boys that are age 36 and 38. I have
01:13:37 5 one granddaughter and another one on the way in about a
01:13:40 6 month.

01:13:41 7 Q. And were you retained as an expert witness in this
01:13:43 8 case?

01:13:43 9 A. I was.

01:13:48 10 Q. By whom?

01:13:49 11 A. I was retained by Solas OLED.

01:13:50 12 Q. And what were you asked to do? What is your role in
01:13:53 13 this case?

01:13:54 14 A. So my role was to analyze these three patents that are
01:13:59 15 in this case. I was asked to look at the details of the
01:14:02 16 patent. I was asked to look at Samsung documents and
01:14:07 17 products to match the claims of the asserted patents to the
01:14:13 18 Samsung products.

01:14:14 19 Q. And are you being compensated for your work in this
01:14:17 20 case?

01:14:17 21 A. I am.

01:14:18 22 Q. How so?

01:14:19 23 A. I'm paid \$400 an hour for my consulting work.

01:14:22 24 Q. And is that your normal hourly rate?

01:14:24 25 A. Yes, it is.

01:14:25 1 Q. And does your compensation depend in any way on the
01:14:28 2 outcome of this case?

01:14:28 3 A. Absolutely not.

01:14:29 4 Q. Did you prepare some presentation slides to help aid
01:14:36 5 your presentation to the jury today?

01:14:38 6 A. Yes, I did.

01:14:39 7 Q. And do you have the clicker right there with you?

01:14:41 8 A. I do.

01:14:42 9 Q. Terrific.

01:14:43 10 Would you please tell the jury a little bit about
01:14:45 11 the experience that you had that lends -- that lends to
01:14:49 12 your expertise in display technology?

01:14:50 13 A. Yes, I think I've been very fortunate that when I got
01:14:54 14 out of school that I got into a field that was very
01:14:57 15 fascinating and has changed over the past now 50 years,
01:15:02 16 displays.

01:15:03 17 I worked in all aspects of displays. The new
01:15:09 18 technology was going from the old CRTs -- some of you are
01:15:15 19 old enough to remember the old boxy tubes -- to the more
01:15:18 20 modern displays we have today.

01:15:20 21 I worked on many aspects of that in R&D for 20
01:15:25 22 years. And I decided I wanted to get more into the action
01:15:29 23 and went to work for product companies that develop
01:15:32 24 products that use new display technology.

01:15:32 25 I also worked in touch, touch technology.

01:15:35 1 So it runs a broad spectrum. My experience is
01:15:39 2 also with different companies, as I'll describe.
01:15:42 3 Q. Okay. And what do you do today?
01:15:44 4 A. Today, I'm a consultant. I do consulting, some
01:15:50 5 technical consulting and some business consulting for
01:15:53 6 companies. But I do a lot of patent analysis like I was
01:15:59 7 retained to do in this case.
01:16:00 8 Q. And do you have any patents yourself? Are you a named
01:16:03 9 inventor on any patents?
01:16:04 10 A. Yes. I'm proud to say that I've earned over 80 U.S.
01:16:07 11 patents, quite a bit more foreign patents. But this
01:16:13 12 is over the span of my career. It wasn't just in the
01:16:17 13 beginning. It was throughout my whole career.
01:16:19 14 I pride myself in being inventive and solving -- a
01:16:25 15 problem solver, so that resulted in quite a few patents.
01:16:28 16 Q. Can you tell the jury about your educational
01:16:30 17 background?
01:16:30 18 A. Yes. I received my Bachelor of Science degree in
01:16:34 19 electrical engineering from Drexel University in 1969. I
01:16:37 20 graduated at the top of my class and was given a full
01:16:43 21 scholarship to MIT.
01:16:44 22 And I spent a year at MIT and got my Master's
01:16:50 23 degree, also in electrical engineering. But my emphasis
01:16:53 24 was electro-optics and solid-state physics and solid-state
01:16:56 25 materials. And so I think it really prepared me well for

01:16:59 1 the career that I eventually fell into.

01:17:01 2 Q. And can you tell the jury a little bit about your
01:17:03 3 real-world work experience related to touch sensor and
01:17:06 4 display technology?

01:17:07 5 A. Yes, be happy to.

01:17:08 6 So the first company I joined was RCA. And in the
01:17:13 7 '70s, RCA was the leading company in television. They
01:17:17 8 actually invented color television. They had a very large
01:17:21 9 research department that was looking at new products that
01:17:24 10 RCA would hopefully introduce in the next five to 10 years.

01:17:28 11 One of those products -- projects was -- we used
01:17:32 12 to call them flat-panel displays to distinguish them from
01:17:36 13 the big CRTs, but we now call it displays.

01:17:39 14 In those days, the technology didn't exist. We
01:17:41 15 had to figure out how do we make a display that's only an
01:17:45 16 inch thick that you can hang on the wall, and that was what
01:17:48 17 the dream of the CEO was, of RCA.

01:17:52 18 And so I worked on that project doing development
01:17:54 19 myself and leading a group. We developed some of the first
01:17:58 20 working models of flat displays, very small, but we were
01:18:03 21 very proud of the fact that we were able to make this with
01:18:06 22 our technology and our ideas.

01:18:08 23 Q. And --

01:18:09 24 A. After that, I joined General Electric, or GE actually
01:18:13 25 bought RCA about the time I moved. And they were working

01:18:16 1 on also flat displays, but this time for cockpits. GE had
01:18:23 2 a big business in supplying electronics for airplanes, and
01:18:26 3 they wanted to replace, again, the bulky displays that you
01:18:31 4 might have seen in old cockpits in movies with these sleek,
01:18:31 5 flat displays, which weigh less and give better picture
01:18:31 6 quality.

01:18:35 7 So we developed that technology, and that's flying
01:18:39 8 in airplanes still today.

01:18:41 9 Q. What did you do after GE?

01:18:43 10 A. So I spent 20 years in R&D. And I was kind of itching
01:18:48 11 to get into product development. And there was a small
01:18:51 12 company in California called Apple Computer that was
01:18:54 13 looking to build laptop displays -- or I should say laptop
01:18:59 14 computers with flat displays.

01:19:01 15 I was hired to run that group, and our job was to
01:19:04 16 look at the technology that could be appropriate for
01:19:06 17 Apple's PowerBooks -- that's what they called them -- and
01:19:09 18 we introduced -- introduced those products. One of the
01:19:13 19 first companies to introduce light-weight laptops. I guess
01:19:17 20 with Apple, the rest is history. We all know about their
01:19:21 21 great products that come after that.

01:19:22 22 Q. And what about after Apple?

01:19:24 23 A. So after Apple, some people asked me, why did you
01:19:27 24 leave, but I had the opportunity to join a group at
01:19:30 25 Motorola that was actually going to manufacture flat-panel

01:19:33 1 displays or displays in the U.S. And I was happy about
01:19:36 2 that because the business was kind of moving into Asia.
01:19:40 3 And Motorola made a major commitment; they hired me to help
01:19:43 4 with the engineering and marketing of this new product.

01:19:45 5 I also was quite involved with the cell phone
01:19:48 6 group of Motorola. Obviously, they're well-known for
01:19:52 7 making cell phones, and they needed help on displays that
01:19:56 8 would go into cell phones, the new models, even including
01:20:02 9 Organic Light-Emitting Diodes, which we'll hear about
01:20:03 10 later -- later today.

01:20:04 11 Q. Did you -- before we go on to the next slide, did you
01:20:07 12 gain any experience with patents working at any of these
01:20:12 13 companies?

01:20:12 14 A. So, yeah, that's a great question. I -- as a young
01:20:15 15 engineer coming out of MIT, I didn't know much about
01:20:18 16 patents. I knew about patents, about the process and the
01:20:22 17 value. And RCA put a lot of values in patents. I think
01:20:25 18 they made a lot of money with their patents and protecting
01:20:28 19 their -- protecting their ideas.

01:20:30 20 The patent attorneys there gave us training as
01:20:32 21 young engineers on how to write down and how to document
01:20:36 22 patents and how to think about patents and their value. So
01:20:38 23 it was really great training for me as a young engineer to
01:20:42 24 be able to kind of understand this aspect of my job.

01:20:46 25 So if I had a good idea, we would discuss it, we

01:20:50 1 would write it down, and they would file patents. And I
01:20:52 2 saw the value to RCA, that these were protecting their
01:20:55 3 business against competition. And at some point, if they
01:20:58 4 want to license that technology, that was revenue that
01:21:01 5 they -- that they got from those patents.

01:21:03 6 So throughout my whole career, I've worked at
01:21:07 7 other start-up companies where their idea was licensing,
01:21:12 8 and so patents are very important. You really need to have
01:21:15 9 good, solid protection for your business. It's probably
01:21:18 10 more true of small companies than it is for big companies.

01:21:21 11 Q. Mr. Credelle --

01:21:22 12 THE COURT: Mr. Credelle, pull the microphone a
01:21:24 13 little closer to you, please.

01:21:26 14 THE WITNESS: Oh, I'm sorry.

01:21:26 15 THE COURT: I want to make sure everybody in the
01:21:28 16 room has a chance to hear you.

01:21:30 17 Go ahead, counsel.

01:21:31 18 MR. FENSTER: Thank you, Your Honor.

01:21:31 19 Q. (By Mr. Fenster) Mr. Credelle, did you gain any
01:21:34 20 real-world experience designing and developing touch
01:21:36 21 sensors?

01:21:36 22 A. Yes, as a matter of fact one of the start-up companies
01:21:39 23 I joined about five years ago, maybe six years ago, was a
01:21:44 24 small company called Innova Dynamics. Their technology was
01:21:50 25 metal nanowires. Kind of a metal -- a metal sensor, and

01:21:54 1 they were fabricating these metal nanowires.

01:21:57 2 I was in charge of engineering, the VP of
01:22:00 3 engineering, to develop prototypes and work with the
01:22:02 4 production people in Taiwan to actually fabricate
01:22:08 5 prototypes using this new technology.

01:22:10 6 So part of my responsibility was to understand the
01:22:14 7 competition for this new technology, whether it's metal
01:22:18 8 mesh or you heard about ITO, indium tin oxide, and compare
01:22:24 9 that to the new technology and look at how to manufacture
01:22:27 10 them and then talk to customers about their needs.

01:22:30 11 So that was a very intense three years working on
01:22:34 12 touch sensors that gave me a lot of background, which
01:22:36 13 actually helped me in understanding the details of this
01:22:39 14 case.

01:22:39 15 Q. Thank you, Mr. Credelle.

01:22:43 16 MR. FENSTER: And, Your Honor, at this time, I'd
01:22:44 17 like to offer Mr. Credelle as an expert in the field of
01:22:50 18 OLED and AMOLED display and touch sensor technology.

01:22:52 19 THE COURT: Is there objection?

01:22:53 20 MR. HASLAM: No objection, Your Honor.

01:22:55 21 THE COURT: Without objection, the Court will
01:22:58 22 recognize the witness as an expert in those designated
01:23:00 23 fields.

01:23:00 24 Please continue.

01:23:02 25 Q. (By Mr. Fenster) Mr. Credelle, can you give the jury

01:23:05 1 kind of an overview of the broad topics that we'll be
01:23:09 2 covering today?

01:23:09 3 A. Sure. As I mentioned, and you've heard, I think, in
01:23:16 4 the opening, there are three patents in this case, the
01:23:20 5 '311, the '450, and the '338. I will start with the '311.
01:23:25 6 I think it's fresh in our minds because we heard from the
01:23:29 7 inventors of the '311 this morning. So, hopefully. It
01:23:32 8 will tie together, and I'll go into the patents that talk
01:23:35 9 about OLED technology.

01:23:36 10 Q. Can you tell the jury some of the materials that you
01:23:40 11 reviewed in preparing your -- and doing your analysis in
01:23:45 12 this case?

01:23:46 13 A. Yes, this is a really long list. Actually, it's a lot
01:23:49 14 of pages.

01:23:50 15 Starting with the patents, of course, that's Step
01:23:53 16 No. 1. Any person with my assignment needs to really
01:24:00 17 understand the details of the patent. That's the
01:24:04 18 specification and most importantly the claims.

01:24:06 19 There's documentation when these -- when these
01:24:11 20 patents are filed. I think we heard something about this
01:24:13 21 yesterday, that they're filed, and there's a lot of back
01:24:15 22 and forth discussion before it gets actually issued as a
01:24:18 23 patent. That documentation is informative. I can learn
01:24:22 24 things from those file histories, they're called. I
01:24:25 25 studied those.

01:24:26 1 And then the documents about the invention of the
01:24:28 2 '311. I think you heard this morning from one of the
01:24:31 3 inventors personally, that he -- how he invented -- what
01:24:36 4 the process was and then when is the patent filed and such.
01:24:41 5 I studied that.

01:24:42 6 And then several documents that are from Samsung.
01:24:48 7 I'll put them up on the screen. Then I'll talk about them.
01:24:51 8 Deposition testimony by Samsung experts, witnesses.

01:24:56 9 Samsung has documents called panel design reviews.
01:24:59 10 This is basically -- think of it as a blueprint for how to
01:25:04 11 make an OLED panel or a touch sensor. All the details that
01:25:07 12 an engineer would need to know or the factory engineer
01:25:10 13 would need to know how to make the product. How big is it,
01:25:13 14 thick is it, those kind of details.

01:25:15 15 The graphic design files are -- I think we saw
01:25:20 16 some maybe this morning, but the graphic design files are
01:25:23 17 actual blueprints. So these are files that would allow a
01:25:28 18 machine to actually make the layers that are in the recipe.
01:25:31 19 Q. And are these -- are you talking about the documents
01:25:33 20 describing the accused Samsung phones?

01:25:35 21 A. Yes, yes, I should have made that clear. So for each
01:25:38 22 of these -- these list of documents, there's a set of these
01:25:42 23 documents for each phone. And there are a lot of phones,
01:25:45 24 so I've looked at a lot of documents.

01:25:47 25 The drawing files are mechanical drawings, so how

01:25:51 1 big is it? Is there any mechanical frame? How is it
01:25:54 2 mounted together? The drawing files help me understand
01:25:57 3 those points. If it was a shaped curve, what's the shape
01:26:02 4 of that curve?

01:26:03 5 And, finally, product specification documents,
01:26:05 6 which starts out with some basic specification, and then it
01:26:08 7 has two to 3,000 pages of documentation of different
01:26:13 8 testing and different specifications for products.

01:26:16 9 Basically, everything down to the screws that are
01:26:19 10 used in putting together the product are in the
01:26:21 11 specification document.

01:26:22 12 Not that I needed to read all 3,000 pages, but
01:26:27 13 there was documents -- there was information in there that
01:26:29 14 was very useful for me to understand how the phone is made,
01:26:31 15 how the part is made.

01:26:32 16 Q. And so can you just give the jury some kind of sense of
01:26:36 17 the overall volume of materials that you reviewed in this
01:26:40 18 case regarding the accused products?

01:26:42 19 A. Yeah, I probably should have added it up in terms of
01:26:46 20 how many feet of paper. I don't tend to print it out
01:26:49 21 myself, but law firms do. And, literally, it's probably
01:26:52 22 50 feet of notebooks or more. It's a lot of information.

01:26:59 23 When you multiply all of those things I described
01:27:01 24 times about 15 or 20, I think 24 phones, maybe 24 phones,
01:27:08 25 it kept me busy for a lot of last year.

01:27:10 1 Q. How much time did you spend analyzing the documents to
01:27:14 2 learn about Samsung's phone and do the comparison to the
01:27:17 3 claims that you'll tell the jury about?

01:27:19 4 A. It's between three and 400 hours I spent over the last
01:27:24 5 year on this -- on this effort.

01:27:26 6 Q. Okay. So let's turn to the '311 patent. And can you
01:27:31 7 give us an overview of how you're going to organize your
01:27:36 8 talk -- actually, instead of doing -- well, yeah, go ahead.
01:27:39 9 Give us an overview of what you'll tell us.

01:27:41 10 A. Okay. So, you know, very briefly, it's on the screen.
01:27:44 11 We'll start with the invention. You've heard a lot about
01:27:46 12 that this morning, and so some of this we can go through
01:27:50 13 more quickly than if I had to start from scratch. But I'll
01:27:53 14 remind you some of the key points.

01:27:55 15 We'll look to see how the claim language claimed
01:27:57 16 in the patents that are asserted compare to the Galaxy
01:28:00 17 phones.

01:28:01 18 Q. And is that -- is that part -- the second one, is that
01:28:04 19 actually the infringement analysis comparing the phones to
01:28:07 20 the claim -- the asserted claims?

01:28:09 21 A. Yeah, that's another -- another way to say it. It's an
01:28:12 22 infringement analysis. Claim/product, these are a match.
01:28:17 23 So I'll be doing that analysis for all of these phones.

01:28:24 24 An investigation of when the invention actually
01:28:26 25 occurred. You heard a lot about that this morning, so

01:28:29 1 we'll summarize the key points there.

01:28:31 2 And, finally, what was Samsung's knowledge of this
01:28:35 3 '311 patent throughout this process -- this time -- time
01:28:39 4 frame?

01:28:39 5 Q. Okay. Can you give us a little bit of background on
01:28:43 6 the invention of the '311?

01:28:44 7 A. Yeah. So the '311 patent was issued February 9th,
01:28:53 8 2016. It was actually filed in October 28th of 2011. The
01:28:59 9 date of invention, I think you heard this morning, was
01:29:02 10 roughly in January of 2011. So that's going to be
01:29:05 11 important for some other aspects I'll discuss later.
01:29:08 12 You've heard from two of the inventors, one by -- by video
01:29:12 13 and one in person.

01:29:15 14 Q. Okay. And what are you showing here? Is this some of
01:29:19 15 the background technology related to the '311 patent?

01:29:22 16 A. Yes. So to remind you, the '311 patent is about the
01:29:27 17 touch sensor that we have on our phones. I think it was
01:29:30 18 mentioned this morning, Apple was probably the first
01:29:32 19 company to put this so-called capacitance sensor on a cell
01:29:37 20 phone. It was kind of a breakthrough. If you think about
01:29:39 21 it, before we had buttons, all of a sudden we could touch
01:29:43 22 the screen anywhere and interact with an icon or we could
01:29:46 23 turn things up and down.

01:29:47 24 It all starts with an electrode on top of the --
01:29:51 25 on top of your screen. So you have -- whether it's an LCD

01:29:54 1 or an OLED, it's a display. You have an invisible, at
01:29:59 2 least to the human eye, screen or electrode -- I should say
01:30:04 3 several electrodes. Kind of think of a grid of electrodes
01:30:07 4 on your phone, and it has some voltages on those
01:30:10 5 electrodes.

01:30:10 6 When you touch this screen, your body has a small
01:30:13 7 amount of charge, a small amount of electricity that will
01:30:17 8 actually kind of disturb the force field of this sensor.
01:30:22 9 And when that happens, there's a controller chip, and the
01:30:26 10 controller chip is sitting there waiting for something to
01:30:28 11 happen. So nothing is happening, nothing is happening, I
01:30:31 12 put my finger there and it says, ah-ha, I see something,
01:30:35 13 and then it decides where -- where did I touch. It sends
01:30:37 14 that information to the computer, and that tells the
01:30:39 15 computer to do something, maybe open a file.

01:30:41 16 Q. And is this an illustration of what Mr. Shaikh was
01:30:44 17 describing on the stand about capacitive touch and sending
01:30:51 18 the signal back to this controller?

01:30:52 19 A. Yeah, exactly. Just another view of that idea. I
01:30:54 20 don't think he had the luxury of having graphics like I do.

01:30:57 21 Q. Mr. Shaikh also told us about the different types of
01:31:00 22 conductive materials, ITO versus metal mesh. Do you have
01:31:04 23 an illustration of that?

01:31:05 24 A. Yes. So around 2007, I think Apple introduced the
01:31:11 25 iPhone. The only metal -- the only mesh that they could

01:31:14 1 use for their sensor was something called indium tin oxide.

01:31:17 2 We've heard a little bit about that.

01:31:19 3 Just think about it as a transparent conductor.

01:31:22 4 So it's like a metal, but you can see through it. And if

01:31:25 5 you can make a pattern of diamonds like is shown on the

01:31:29 6 left side of this screen, it will interact with your

01:31:31 7 finger, and you can -- you can make a signal. So that's

01:31:34 8 the old way of doing things.

01:31:35 9 That -- that technology had some issues, but it

01:31:39 10 did work.

01:31:42 11 MR. FENSTER: Mr. Wietholter, if we could skip to

01:31:44 12 Slide 19.

01:31:48 13 Q. (By Mr. Fenster) And, Mr. Credelle, if you could just

01:31:50 14 give us an overview of --

01:31:54 15 MR. FENSTER: Skip one more.

01:31:55 16 Q. (By Mr. Fenster) And can you just give us an overview

01:31:57 17 of the invention of the '311 patent?

01:32:00 18 A. Yes. So the metal mesh, which you heard about this

01:32:03 19 morning and is shown in this slide, the touch sensor, which

01:32:09 20 is really a metal mesh on a substrate, it's configured to

01:32:11 21 wrap around the edge of a display.

01:32:13 22 So I'm illustrating here a touch sensor on a

01:32:15 23 substrate. We have a display on the bottom, which happened

01:32:19 24 to have some curved edges, and there's a cover glass,

01:32:23 25 basically the front of your phone.

01:32:25 1 If we assemble them, now we have basically the top
01:32:29 2 of your phone, and it now has a touch sensor on the flat
01:32:34 3 surface. It has a touch sensor on the edge. So it's a
01:32:36 4 very new kind of concept, and it's the concept Samsung uses
01:32:40 5 in many of their phones now.

01:32:42 6 Q. And what are some of the benefits of the '311
01:32:45 7 invention?

01:32:45 8 A. So the '311 invention, because it's based on metal
01:32:48 9 mesh, what -- that allows the sensor to work better. I
01:32:53 10 think you heard this morning if the resistance is lower, it
01:32:58 11 will move faster, so less sluggish. If you touch it, it
01:33:01 12 will respond.

01:33:02 13 It allows these new form factors. It's very hard
01:33:05 14 to make ITO bend around edges and corners. It can be done,
01:33:09 15 but it's very expensive. So if you want that kind of
01:33:12 16 feature, the metal mesh, the flexibility of that will allow
01:33:16 17 you to make these new form factors. It could be lower
01:33:20 18 cost.

01:33:23 19 And, finally, you can have phones with very small
01:33:25 20 borders. If you put -- if you wrap around the sensor, then
01:33:29 21 you can hide all the other connections underneath.

01:33:32 22 Q. Okay. Let's move on to the infringement analysis.

01:33:35 23 A. Let's.

01:33:40 24 Q. Okay. So can you give us an overview or identify for
01:33:44 25 the jury which phones are infringing the '311 patent?

01:33:46 1 A. Yes. So, as I mentioned, some of the Samsung phones
01:33:50 2 still use the old technology, but the transition was made
01:33:54 3 to this metal mesh sensor. Starting with the S8, then the
01:33:59 4 S9, the S9 Plus, the S10, the S10 Plus, the S10 5G, the
01:34:09 5 S20, the S20 Plus, the S20 Ultra, the Z-Flip, the Note 9,
01:34:17 6 the Note 10, and Note 10 Plus. Samsung does have a lot of
01:34:21 7 phone models.

01:34:22 8 Q. And can we refer -- actually, I'll withdraw.

01:34:25 9 A. Yeah.

01:34:25 10 Q. Did you analyze each of the phones that you just read
01:34:28 11 into the record and compare them to the asserted claims of
01:34:33 12 the '311 patent?

01:34:33 13 A. Yes, I did that. And all of these devices infringe
01:34:41 14 Claim 7 and 12. And I'll probably refer to these and this
01:34:45 15 group of products as the '311 infringing devices.

01:34:50 16 MR. FENSTER: Your Honor, at this time, we're
01:34:51 17 going to move into confidential material, and I'd ask that
01:34:53 18 the courtroom be sealed.

01:34:54 19 THE COURT: Based on that request from counsel,
01:34:57 20 I'll order the courtroom sealed.

01:34:59 21 Those of you that are present and not subject to
01:35:01 22 the protective order in this case should excuse yourselves
01:35:04 23 and remain outside the courtroom until it is reopened and
01:35:08 24 unsealed.

01:35:11 25 (Courtroom sealed.)

01:35:11 1 (This portion of the transcript is sealed
01:35:11 2 and filed under separate cover as
01:35:24 3 Sealed Portion No. 3.)
02:34:41 4 (Courtroom unsealed.)
02:34:42 5 THE COURT: If you'll leave your notebooks in your
02:34:44 6 chairs, follow all my instructions, use this opportunity to
02:34:47 7 stretch your legs, get a drink of water, and we'll be back
02:34:50 8 shortly to continue with the rest of this direct testimony.
02:34:52 9 The jury is excused for recess at this time.
02:34:54 10 COURT SECURITY OFFICER: All rise.
02:34:57 11 (Jury out.)
02:34:58 12 THE COURT: The Court stands in recess.
02:35:37 13 COURT SECURITY OFFICER: All rise.
02:35:38 14 (Recess.)
02:50:26 15 (Jury out.)
02:50:27 16 COURT SECURITY OFFICER: All rise.
02:50:28 17 THE COURT: Be seated, please.
02:50:30 18 Mr. Fenster, are you prepared to continue with
02:50:37 19 your direct examination of Mr. Credelle?
02:50:39 20 MR. FENSTER: Yes, Your Honor.
02:50:40 21 THE COURT: And am I correct you see no problems
02:50:46 22 with starting with the remainder of your direct with the
02:50:49 23 courtroom unsealed? You'll let me know when you need to
02:50:52 24 return to the sealed posture?
02:50:54 25 MR. FENSTER: I will, and counsel for Samsung just

02:50:57 1 asked that I advise. So I'm going to tell the Court when
02:51:00 2 I'm going to go into technical information and ask that the
02:51:03 3 court be sealed.

02:51:04 4 There is -- later in the process, I'll be going
02:51:09 5 into licenses for a comparability analysis. I will
02:51:12 6 separately advise Your Honor at that point because Samsung
02:51:16 7 has requested that one of their corporate reps who can hear
02:51:20 8 the technical but not the licensing information. So I'll
02:51:23 9 advise you when it's time to seal, and then I'll advise you
02:51:26 10 when I'm going to go into the licenses if that's okay?

02:51:30 11 THE COURT: All right. Let me make sure I
02:51:32 12 understand you. You're going to let me know when you're
02:51:35 13 going into technical testimony, and you're going to request
02:51:39 14 that I seal the courtroom.

02:51:39 15 MR. FENSTER: Yes.

02:51:40 16 THE COURT: And at some point when you finish the
02:51:43 17 technical testimony, you're going to request that I unseal
02:51:45 18 the courtroom?

02:51:47 19 MR. FENSTER: No, it will remain sealed, but
02:51:50 20 Samsung has asked, and I've agreed, that their corporate
02:51:54 21 rep can stay in during the sealed portion that I'm going to
02:51:57 22 deal with only the technical matters, and then I'll advise
02:52:00 23 the Court so that Samsung can have her exit when I --
02:52:04 24 before I get into the licensing.

02:52:05 25 THE COURT: All right.

02:52:05 1 MR. FENSTER: But it will remain sealed throughout
02:52:09 2 that time.

02:52:09 3 THE COURT: And that raises a good point. I have
02:52:12 4 in the past trials had problems with people getting up,
02:52:16 5 going out, coming back in while the courtroom is sealed,
02:52:20 6 and those that are outside see people come and go and
02:52:23 7 wonder why they have to stay outside and everybody else can
02:52:28 8 seem to come and go with impunity.

02:52:31 9 So I'll certainly permit this per your agreement
02:52:33 10 with defense counsel, but as a general rule, once the
02:52:37 11 courtroom is sealed, I don't expect support staff to be
02:52:41 12 coming and going in and out of the door.

02:52:44 13 As a matter of fact, many of our Court Security
02:52:45 14 Officers lock the door during sealing. They don't leave it
02:52:48 15 open. All right?

02:52:49 16 MR. FENSTER: Very good.

02:52:50 17 THE COURT: All right. Let's bring in the jury,
02:52:54 18 please.

02:52:54 19 COURT SECURITY OFFICER: All rise.

02:53:15 20 (Jury in.)

02:53:17 21 THE COURT: Please be seated, ladies and
02:53:36 22 gentlemen.

02:53:36 23 We'll continue with the Plaintiff's direct
02:53:41 24 examination of Mr. Thomas Credelle.

02:53:45 25 Mr. Fenster, you may proceed.

02:53:47 1 MR. FENSTER: Thank you, Your Honor.

02:53:47 2 Q. (By Mr. Fenster) So, Mr. Credelle, we just went
02:53:51 3 through the '311 patent.

02:53:53 4 Now we're going to turn to the '450 and '338
02:53:55 5 patents. Can you give the jury an idea -- just sort of the
02:54:00 6 overview bullet points of the topics that we're going to
02:54:03 7 cover in this next section?

02:54:04 8 A. Yes, certainly.

02:54:05 9 This -- we've switched gears now. We were talking
02:54:09 10 about the touch sensor, that's the '311 patent. Now we're
02:54:11 11 going to talk about the display. In this case, it's the
02:54:16 12 so-called OLED display, and it has a lot of stuff inside.

02:54:20 13 So we're going to start with a little technology
02:54:22 14 background that will hopefully allow you to make a little
02:54:25 15 bit more sense of the claims as we go through them. Then
02:54:28 16 we'll talk about the invention of the '450 patent.

02:54:30 17 But, first, I'll do my infringement analysis for
02:54:34 18 the '450, I'll move on to the '338 patent, which is another
02:54:37 19 patent related to the display, and then talk about the
02:54:43 20 infringement analysis for the '338.

02:54:45 21 Q. Okay. Can you give us a little bit of technical --
02:54:49 22 technical background to orient the jury for these next
02:54:51 23 patents?

02:54:51 24 A. Yes. So we're talking about Organic Light-Emitting
02:54:56 25 Diodes. It's abbreviated OLED. You may have seen that --

02:54:59 1 that word advertised on some displays for phones or TVs if
02:55:04 2 you go to Best Buy. This is a new type of display
02:55:08 3 technology, which I'll describe.

02:55:11 4 Q. Okay. And can you give us a little bit of an overview
02:55:19 5 of the -- how the OLEDs work in terms of the pixels and the
02:55:25 6 circuits?

02:55:25 7 A. I'll be happy to. This is the stuff I really love, so
02:55:29 8 I'll hopefully get the message across.

02:55:31 9 I mentioned that I started with RCA Labs in the
02:55:35 10 '70s. And these CRTs, these big, bulky TV sets that we all
02:55:39 11 had in our rooms, if you're old enough. And that was the
02:55:42 12 good technology of the day.

02:55:44 13 Moved into liquid crystal displays, starting
02:55:47 14 putting them in small products, then laptops, then TV sets,
02:55:51 15 still in use today.

02:55:53 16 It's progressed now, though, in the last several
02:55:55 17 years to the next generation, which is called OLED, and
02:55:59 18 it's a superior technology, which I'll describe some of its
02:56:05 19 features.

02:56:05 20 Q. Go ahead.

02:56:06 21 A. Okay. So, first, how do they work? If we had several
02:56:14 22 days, I could give you really good lessons, but I'll try to
02:56:18 23 keep -- keep it short.

02:56:19 24 If you were to look under a microscope at this
02:56:22 25 Samsung Galaxy phone, you would see a series of red, green,

02:56:26 1 and blue dots. Sometimes when you look under a microscope,
02:56:30 2 you may see pictures with displays with stripes, but this
02:56:34 3 is a different type of pattern.

02:56:36 4 Each of those dots is an LED. So you're probably
02:56:41 5 familiar with LEDs in flashlights or even in light bulbs.
02:56:41 6 An LED is a very simple device. But if you want to make a
02:56:44 7 display out of LEDs, you have to figure out some way to
02:56:48 8 spread them out over a big piece of glass or such.

02:56:52 9 To make light -- to make a picture, each LED
02:56:56 10 brightness has to be controlled. So if it was a dark
02:56:59 11 picture, it would be black, it would be off. If it's a
02:57:03 12 bright picture, it would be on. If you wanted a red glob,
02:57:07 13 you would just turn on the red dots.

02:57:09 14 If you look more closely under a more high-powered
02:57:15 15 microscope, you'd see these dots. They're kind of funny
02:57:18 16 shapes, but maybe in this picture you can kind of see,
02:57:21 17 underneath those dots are circuits.

02:57:23 18 So somehow we have to let the computer tell each
02:57:26 19 pixel how bright to be, and that's done with an array of
02:57:29 20 circuitry, which I'll show the kind of main components.
02:57:33 21 And they drive all of these pixels -- it means picture
02:57:37 22 element, but the dots are sometimes called pixels, to
02:57:40 23 create an image.

02:57:44 24 So I said the LED is a pretty simple device. If
02:57:48 25 you put a voltage across an LED, like in a flashlight, you

02:57:52 1 push the switch, voltage is applied, light comes out. You
02:57:55 2 turn it off, light's done.

02:57:58 3 Same thing with this OLED in a display, except now
02:58:01 4 there's red, green, and blue patches. But they're all
02:58:05 5 still controlled with a low voltage, just a few volts, and
02:58:05 6 they'll turn on and be nice and bright. And if you turn
02:58:10 7 down the voltage, it will get dimmer. If you turn up the
02:58:13 8 voltage, it'll get brighter.

02:58:13 9 Q. And what makes this an Organic Light-Emitting Diode?

02:58:16 10 A. Yeah. So the LEDs we use in our flashlights and light
02:58:22 11 bulbs are made in a semiconductor process. So it's -- it's
02:58:26 12 called an inorganic LED. It's not -- the distinction isn't
02:58:32 13 so important, but these are made out of organic materials
02:58:35 14 that are evaporated onto a piece of glass, so it's a
02:58:40 15 different process. But the process is more compatible with
02:58:43 16 large sizes.

02:58:44 17 So these days you can buy OLED TVs that are
02:58:48 18 80 inches or more. And it uses these Organic
02:58:52 19 Light-Emitting Diodes, but the principle of operation is
02:58:54 20 the same.

02:58:54 21 Q. So you mentioned that there are circuits behind each of
02:58:58 22 the pixels to control the voltage going into each and every
02:59:02 23 single OLED. Can you illustrate that for us?

02:59:05 24 A. Yes. One more point in this slide. On the left is a
02:59:11 25 symbol that electrical engineers use to indicate a diode.

02:59:15 1 This is -- it won't be so important, but I just wanted
02:59:18 2 to -- if you see this later, that's where the light comes
02:59:20 3 out. I'll try to make that clear.

02:59:21 4 So I showed you a picture that had some circuitry.
02:59:26 5 And as Mr. Fenster said, if you want to control all of
02:59:29 6 these dots, you have to have some extra circuits. You
02:59:34 7 can't put two wires to every pixel. You'd have, you know,
02:59:37 8 millions of miles of wire.

02:59:39 9 So you have a -- what's called a matrix. It's a
02:59:43 10 grid of transistors and capacitors and electrodes that will
02:59:50 11 drive all of these pixels to the right brightness, and it's
02:59:53 12 all going to take information from a computer to tell the
02:59:56 13 screen what brightness to be. And I'll try to show you how
02:59:59 14 that works.

02:59:59 15 Q. And what does active matrix refer to?

03:00:03 16 A. So I think engineers like to come up with buzz words
03:00:09 17 and names. It's a matrix, it's like a grid, and it uses
03:00:14 18 what engineers call active components. So a transistor is
03:00:20 19 an example of an active component. So active matrix would
03:00:23 20 have transistors in addition to the OLED material and some
03:00:26 21 other components that I'll show.

03:00:27 22 Q. And do these individual tiny circuits individually
03:00:31 23 control the voltage going through every one of these
03:00:34 24 millions of points of light or pixels?

03:00:37 25 A. Absolutely. It amazes even me sometimes that it works.

03:00:41 1 Q. And this Active-Matrix OLED, is that something that
03:00:44 2 you've heard -- I probably jumped the gun -- with an
03:00:51 3 acronym an AMOLED?

03:00:51 4 A. Yes. Sometimes -- again engineers like to make up
03:00:54 5 acronyms, but AMOLED is sometimes used as an acronym. But
03:01:00 6 I'll try to minimize the use of acronyms because it gets
03:01:02 7 confusing.

03:01:03 8 Q. So can you -- in the opening statement and through some
03:01:08 9 of the claims, we've seen that the claims require something
03:01:10 10 called a transistor. Can you tell the jury what that is?

03:01:13 11 A. Yes. So one of the components we need in this circuit
03:01:16 12 is a transistor. Transistors come in all flavors and
03:01:20 13 shapes and sizes, but fortunately for displays, it's a
03:01:24 14 pretty simple device.

03:01:26 15 All transistors have three electrodes, but two of
03:01:31 16 them have current flow and one of them is a control valve,
03:01:36 17 if you will. So we have a gate. It's called a gate and a
03:01:40 18 source and a drain.

03:01:41 19 But if you think of a pipe with a gate valve, if
03:01:44 20 you have a transistor, and this is what the side view of a
03:01:49 21 transistor would look like. It has what's called a source,
03:01:51 22 think of that as source of water in a pipe or a source of
03:01:55 23 current. It has a drain. You would think of water. A
03:01:59 24 channel is an area that's going to be kind of where the
03:02:04 25 gate valve is located. There's also an insulator, and

03:02:09 1 there's a gate. A gate is an electrode, so there's three
03:02:12 2 electrodes.

03:02:12 3 So if I want to control how much current is
03:02:15 4 flowing in the transistor or how much water is flowing in
03:02:18 5 the pipe, I can open the valve, and a certain amount of
03:02:22 6 water will flow through and, likewise, a certain amount of
03:02:26 7 current will go through this device. I can open the gate
03:02:29 8 farther, and more current will flow. So just think of
03:02:31 9 water in a pipe and a gate valve.

03:02:34 10 Having this -- this function in a display will
03:02:40 11 allow us to adjust the current, which controls the
03:02:44 12 brightness of every pixel. Low current, low brightness;
03:02:47 13 high current, high brightness.

03:02:49 14 Q. And is there another circuit element that you'd like to
03:02:51 15 tell the jury about --

03:02:51 16 A. Yes.

03:02:52 17 Q. -- before we get into the patent analysis?

03:02:54 18 A. Yes. So the second -- the second requirement or need
03:02:56 19 for any display is the ability to tell the display what
03:03:03 20 picture you want to -- you want to make. And it's helpful
03:03:06 21 if you can store that information someplace.

03:03:07 22 And a real handy device for storing information in
03:03:10 23 this kind of a display is called a capacitor. It's another
03:03:17 24 component that electrical engineers use in their circuits.

03:03:19 25 And it's pretty simple. It's -- if you put some

03:03:22 1 current into a capacitor, it will charge up. It will get
03:03:25 2 to a high -- it will get to a voltage. A little bit of a
03:03:28 3 current will get a low voltage. A higher current will get
03:03:31 4 a higher voltage.

03:03:33 5 And once the -- once the current or charges are
03:03:38 6 put on the capacitor, it will stay there until you take it
03:03:41 7 away. So it does kind of act like a memory.

03:03:46 8 If you think of a display like a big memory, what
03:03:50 9 I'd like to be able to do is have the computer tell me what
03:03:52 10 every dot of brightness is supposed to be. So I put that
03:03:56 11 information -- sorry -- put that information into the
03:03:59 12 capacitors, and then the capacitors are going to control
03:04:02 13 that gate, and it's going to allow current to flow through
03:04:06 14 every pixel.

03:04:07 15 So that's the concept of how these displays work.

03:04:10 16 Q. Okay. Can you just explain to the jury in a very
03:04:13 17 simple way how the capacitor and the transistor work
03:04:15 18 together to control an individual OLED pixel?

03:04:19 19 A. Right. So -- so here's a transistor in these patents,
03:04:30 20 and it's pretty typical for OLED displays as they talk
03:04:34 21 about a drive transistor. Think about it as the transistor
03:04:37 22 that's going to control the current that goes to the OLED,
03:04:40 23 which is this device at the bottom.

03:04:43 24 So I have my current flowing through here, it's
03:04:47 25 controlled by how much signal I have on that capacitor. So

03:04:51 1 if I store a little bit of charge, a little bit of signal,
03:04:53 2 it will be dim. If I make a high signal here, it will be
03:04:58 3 brighter.

03:04:59 4 And I think maybe the next slide shows that.

03:05:03 5 So by increasing the gate, increasing the charge,
03:05:11 6 the control signal on the gate, more current is going to
03:05:14 7 flow.

03:05:15 8 So if I have -- if I have some way with some extra
03:05:18 9 wires to put these signals on these capacitors and then let
03:05:22 10 the current flow, I'll be able to create a picture.

03:05:24 11 Q. And if you -- and I think the next one shows --

03:05:28 12 A. High brightness, yeah. Low, medium, high.

03:05:31 13 Q. Okay. So now let's turn to the '450 patent. And can
03:05:35 14 you give the jury an overview of what the '450 patent
03:05:38 15 invention relates to?

03:05:39 16 A. Yes. So the '450 patent, as I mentioned, is about
03:05:43 17 OLEDs. And it's -- it's more about the structure, and it's
03:05:47 18 more of a structure patent than it is like a circuit
03:05:51 19 patent, if you will. I'll try to describe that.

03:05:53 20 The '450 patent, 6,072 -- the date of the patent
03:06:00 21 is June 6th of 2000. It's PTX-001.

03:06:08 22 And we're going to -- we're going to discover --
03:06:11 23 we're going to consider Claim 4 and Claim 5 in this
03:06:16 24 infringement analysis. They're both dependent on Claim 1.
03:06:19 25 And I'll go through those line-by-line in the same way I

03:06:23 1 did for the '311 patent.

03:06:25 2 Q. Before we do that, can you give the jury just an

03:06:28 3 overview conceptually of what the '450 relates to --

03:06:31 4 A. Yes.

03:06:31 5 Q. -- or that invention?

03:06:34 6 A. So I just described two components, a capacitor and a

03:06:39 7 transistor. A typical simple OLED circuit would have two

03:06:43 8 transistors and one capacitor. And they take up some

03:06:46 9 space. Here's kind of a lay -- a top view of those

03:06:50 10 transistors.

03:06:53 11 And when the resolution of the display gets really

03:06:55 12 high, so the pixels get really small, it really doesn't

03:06:58 13 leave a lot of room for this light-emitting area. So as

03:07:02 14 that gets squeezed, it's going to be lower brightness. So

03:07:07 15 this is kind of the old way of making an Active-Matrix OLED

03:07:11 16 screen.

03:07:13 17 Thank you.

03:07:13 18 The new way, as described in the '450 patent, is

03:07:18 19 to think about making a two-level circuit. I like to think

03:07:24 20 of it as kind of a two-story house. On the first floor,

03:07:28 21 we're going to take away the light-emitting part. Just

03:07:31 22 leave the circuits.

03:07:32 23 And it's not only the circuits, I mentioned there

03:07:35 24 are wires that have to bring the signals into those

03:07:37 25 circuits. They take up room, as well. So if you can get

03:07:40 1 rid of that light-emitting material, you have more room for
03:07:43 2 that stuff.

03:07:44 3 So to do that, though, you have to deposit some
03:07:46 4 insulator. You don't want things to short out. So you put
03:07:50 5 an insulator. You have to actually make some holes so you
03:07:54 6 can put a wire connection between the first floor and the
03:07:56 7 second floor, and then you can create electrodes and
03:08:01 8 light-emitting material and a second electrode.

03:08:05 9 And now you have the ability -- now, you can
03:08:08 10 actually have more room for the light-emitting material, so
03:08:12 11 you can have a brighter display or it can even last longer.
03:08:17 12 You can have -- you can put in more transistors. You can
03:08:20 13 put in more -- you can go to higher resolution displays.

03:08:24 14 So these are very key advancements to think about
03:08:28 15 going from low resolution to high resolution, where today
03:08:33 16 all phones have high resolution. That means there's lots
03:08:36 17 of dots per inch. And it has other benefits.

03:08:39 18 Q. Okay. Now, I think the next part of your analysis is
03:08:41 19 going to move into the infringement analysis.

03:08:44 20 MR. FENSTER: And at this point, Your Honor, I
03:08:45 21 would ask that the courtroom be sealed, as we're going to
03:08:47 22 get into confidential material.

03:08:50 23 THE COURT: Then based on counsel's request, I'll
03:08:53 24 order the courtroom sealed at this time.

03:08:54 25 And I'll direct those who are present but not

03:08:57 1 subject to the protective order to excuse themselves and
03:08:59 2 remain outside the courtroom until it's reopened and
03:09:02 3 unsealed.

03:09:03 4 (Courtroom sealed.)

03:09:03 5 (This portion of the transcript is sealed
03:09:03 6 and filed under separate cover as

03:09:04 7 Sealed Portion No. 4.)

04:20:09 8 (Courtroom unsealed.)

04:20:09 9 THE COURT: When I come back, I'll reseal the
04:20:12 10 courtroom. This individual can remain outside when the
04:20:14 11 courtroom is resealed per your agreement.

04:20:16 12 MR. FENSTER: Thank you.

04:20:17 13 THE COURT: Ladies and gentlemen of the jury,
04:20:18 14 simply close your notebooks, if you will, and leave them in
04:20:21 15 your chairs. Please follow all my instructions, including
04:20:24 16 not to discuss the case among yourselves or with anyone.
04:20:28 17 And we'll be back here -- I'm going to try to keep this
04:20:31 18 short, so approximately 10 minutes, and we'll continue with
04:20:34 19 the direct examination of this witness at that time.

04:20:36 20 All right. The court stands in recess.

04:20:40 21 COURT SECURITY OFFICER: All rise.

04:20:40 22 (Recess.)

04:38:34 23 (Jury out.)

04:38:35 24 COURT SECURITY OFFICER: All rise.

04:38:36 25 THE COURT: Be seated, please.

04:38:37 1 Let's bring in the jury, please.

04:38:53 2 COURT SECURITY OFFICER: All rise, please.

04:38:57 3 THE COURT: It won't hurt you to get up and down

04:39:01 4 in the middle of the afternoon.

04:39:02 5 THE WITNESS: Exercise. Exercise.

04:39:07 6 (Jury in.)

04:39:31 7 THE COURT: Please be seated.

04:39:32 8 Counsel, as we previously discussed, I'm going to

04:39:35 9 order the courtroom sealed at this juncture and direct that

04:39:38 10 all persons not subject to the protective order in this

04:39:40 11 case that might be present in the courtroom, you should

04:39:44 12 excuse yourselves and remain outside the courtroom until

04:39:46 13 it's reopened and unsealed.

04:39:47 14 (Courtroom sealed.)

04:39:47 15 (This portion of the transcript is sealed

04:39:47 16 and filed under separate cover as

04:39:48 17 Sealed Portion No. 5.)

04:39:48 18 (Courtroom unsealed.)

04:50:52 19 THE COURT: All right. Sir, proceed with your

04:51:33 20 cross-examination, please.

04:51:35 21 MR. HASLAM: Could we pull up Plaintiff's

04:51:37 22 Demonstrative 242 that was used during the direct?

04:51:52 23 242. It's in the Plaintiff's deck. Do you have

04:52:11 24 that? 242.

04:52:11 25 CROSS-EXAMINATION

04:52:21 1 BY MR. HASLAM:

04:52:21 2 Q. Okay. You recognize this as one of the demonstratives

04:52:25 3 that you used?

04:52:26 4 A. Yes.

04:52:26 5 Q. Okay. And I think you were asked a question at some

04:52:29 6 point about how this circuit operated. I want to focus on

04:52:35 7 T3 here for a moment.

04:52:37 8 A. Okay.

04:52:37 9 Q. T3 is connected between the drain of T1 and the gate of

04:52:44 10 T1 and the lower plate of the capacitor Cst, correct?

04:52:56 11 A. Yes.

04:52:56 12 Q. And the claim that you were addressing with this slide,

04:53:04 13 the '338, required that when T3 is off, it holds the

04:53:09 14 voltage between the gate and source of T1, correct?

04:53:14 15 A. Yes.

04:53:16 16 Q. Okay. Now, you recall you were -- you gave us a

04:53:19 17 report, right? You prepared a report, all the experts

04:53:23 18 prepared a report, very voluminous, that set forth all of

04:53:27 19 your opinions that you were going to testify to?

04:53:29 20 A. Yes.

04:53:29 21 Q. And then we had an opportunity to ask you questions at

04:53:32 22 a deposition, correct?

04:53:33 23 A. Correct.

04:53:34 24 Q. And we asked you at your deposition about T3. And I

04:53:40 25 just want to make sure, that during the light-emission

04:53:44 1 period, T3 is off, correct?

04:53:46 2 A. During the light-emission period, T3 is off.

04:53:52 3 Q. And you were asked at your deposition: And when T3 is

04:53:55 4 off, T3 is holding a voltage between the gate and drain of

04:53:59 5 T1, the driving transistor, correct?

04:54:03 6 And you said: Yes.

04:54:04 7 Do you recall that testimony, or do you want to

04:54:09 8 see it?

04:54:09 9 A. No, I recall.

04:54:11 10 Q. Thank you.

04:54:31 11 MR. HASLAM: Can we pull up -- I think it's

04:54:42 12 Slide -- well, I lost myself here. Hang on.

04:54:47 13 Can you pull up DTX-633?

04:54:57 14 Q. (By Mr. Haslam) Do you recognize this document?

04:54:58 15 A. Yes, I -- it looks familiar.

04:55:03 16 Q. It's a -- do you know what the PDR is?

04:55:07 17 A. I know what the PDR is. I don't remember what model MQ

04:55:11 18 relates to, but it's one of the ones I analyzed --

04:55:15 19 THE COURT: Just a minute.

04:55:16 20 Mr. Fenster, do you have some reason why you're
04:55:18 21 standing?

04:55:19 22 MR. FENSTER: I apologize. We did not receive any
04:55:21 23 cross-examination binders, if there are such.

04:55:23 24 THE COURT: If we have one to cross out -- pass
04:55:25 25 out, rather, we need to do that.

04:55:28 1 MR. FENSTER: Apologize for the interruption.

04:55:36 2 Q. (By Mr. Haslam) Okay. This is the kind of document
04:55:38 3 you relied on?

04:55:39 4 A. Yes, it's an example.

04:55:41 5 MR. HASLAM: Can we go to Page 8 in this document?

04:55:43 6 Q. (By Mr. Haslam) This is a page that's called -- it's

04:55:48 7 4.3.

04:55:52 8 MR. HASLAM: I guess we need to seal the

04:55:54 9 courtroom. I apologize.

04:55:55 10 THE COURT: That's all right. Based on counsel's

04:55:58 11 request, I'll order the courtroom sealed. Those present

04:56:00 12 not subject to the protective order should excuse

04:56:03 13 themselves until the courtroom is reopened and unsealed.

04:56:10 14 (Courtroom sealed.)

04:56:10 15 (This portion of the transcript is sealed

04:56:10 16 and filed under separate cover as

04:56:11 17 Sealed Portion No. 6.)

05:31:01 18 (Courtroom unsealed.)

05:31:01 19 THE COURT: Now, that we're unsealed, based on

05:31:04 20 Defendants' request, we'll take a short recess, not more

05:31:10 21 than 20 minutes.

05:31:12 22 Ladies and gentlemen of the jury, if you'll take
05:31:14 23 your notebooks with you, if you'll return to the jury room,
05:31:18 24 I don't know if it will be exactly that length of time, but
05:31:22 25 as soon as counsel is prepared to go forward, I'll have you

05:31:24 1 back in here to continue with the cross-examination of
05:31:26 2 Mr. Credelle.

05:31:27 3 Follow all my instructions, including not to
05:31:31 4 discuss the case.

05:31:31 5 The jury is excused to the jury room.

05:31:34 6 COURT SECURITY OFFICER: All rise.

05:31:35 7 THE COURT: Ms. Hux, why don't you lead the way?

05:31:47 8 Well, okay.

05:31:55 9 (Jury out.)

05:31:55 10 THE COURT: All right. The Court's going to stand
05:32:15 11 in recess.

05:32:16 12 Mr. Haslam, when you're ready to proceed some time
05:32:20 13 in the next 20 minutes, let me know.

05:32:22 14 MR. HASLAM: Will do.

05:32:23 15 THE COURT: The Court's in recess.

05:32:30 16 (Recess.)

05:32:31 17 (Jury out.)

05:32:34 18 COURT SECURITY OFFICER: All rise.

05:32:35 19 THE COURT: Be seated, please.

05:48:49 20 Mr. Haslam, are you prepared to have the Court
05:48:54 21 bring the jury back in and continue with your
05:48:57 22 cross-examination?

05:48:57 23 MR. HASLAM: Well, as I'm ever going to be on
05:49:00 24 this.

05:49:03 25 THE COURT: All right.

05:49:06 1 MR. HASLAM: When they come in, just to save time,
05:49:08 2 I will ask to have the courtroom sealed.

05:49:10 3 THE COURT: Okay. That's fine.

05:49:11 4 Let's bring the jury in, please.

05:49:20 5 COURT SECURITY OFFICER: All rise.

05:49:23 6 (Jury in.)

05:49:23 7 THE COURT: Welcome back, ladies and gentlemen.

05:49:50 8 Please be seated.

05:49:50 9 Is it my understanding, Mr. Haslam, you would like
05:49:57 10 to request the Court to seal the courtroom?

05:50:00 11 MR. HASLAM: Please.

05:50:01 12 THE COURT: Then based on that, I will order the
05:50:03 13 courtroom sealed. I'll direct the Court Security Officer
05:50:04 14 to enforce the sealing of the courtroom.

05:50:08 15 Those present who are not subject to the Court's
05:50:11 16 protective order in this case should exit the courtroom and
05:50:14 17 remain outside until the courtroom is unsealed.

05:50:18 18 (Courtroom sealed.)

05:50:18 19 (This portion of the transcript is sealed
05:50:18 20 and filed under separate cover as
05:50:18 21 Sealed Portion No. 7.)

06:06:30 22 (Courtroom unsealed.)

06:06:31 23 THE COURT: I've excused the jury for the evening.

06:06:33 24 Counsel, please be seated.

06:06:35 25 I'm showing that today, we have used seven hours

06:06:49 1 and almost two minutes of trial time.

06:06:52 2 The Plaintiff has used five hours and, rounding
06:07:01 3 the seconds -- to minutes, 15 minutes.

06:07:04 4 And the Defendant has used two hours and,
06:07:07 5 following the same procedure, 47 minutes.

06:07:11 6 Also, I've reviewed the current state of what you
06:07:17 7 have previously submitted as a proposed charge to the jury
06:07:21 8 and verdict form. And I find that the Court could benefit
06:07:27 9 by a renewed effort on your part.

06:07:29 10 I'm ordering both sides to meet and confer and
06:07:32 11 jointly resubmit a revised and updated proposed final jury
06:07:39 12 instruction and verdict form by 3:00 o'clock tomorrow
06:07:43 13 afternoon.

06:07:43 14 In those areas where you have differing positions
06:07:47 15 or you disagree, your competing proposals should be
06:07:55 16 submitted in that single joint submission. Either use a
06:07:58 17 different font, use a different color highlighting, but
06:08:01 18 make it so that clearly I can see Plaintiff's version
06:08:05 19 throughout the documents and Defendants' version throughout
06:08:07 20 the documents at any place where you don't agree. Where
06:08:10 21 you agree, I expect to see plain print without highlighting
06:08:14 22 or a change in font.

06:08:15 23 And you should submit that to my staff directly by
06:08:21 24 email with a Word version. And, again, I'd like to have
06:08:26 25 that in my possession by no later than 3:00 p.m. tomorrow.

06:08:29 1 I'll remind you to continue to meet and confer
06:08:34 2 strenuously and diligently overnight. I'll be available by
06:08:38 3 7:30 tomorrow if there are disputes that are otherwise
06:08:42 4 unresolved.

06:08:44 5 And I'll look for an up-to-date binder at 7:00
06:08:49 6 o'clock at chambers outlining any surviving disputes.
06:08:54 7 Hopefully, there will be few or none. But to the extent
06:08:58 8 there are, showing me what is in dispute and giving me a
06:09:02 9 clear but concise position in writing of each party's
06:09:07 10 position, not only the offering party or the party that
06:09:10 11 intends to use it but the objecting party.

06:09:12 12 As I told you in chambers this morning, your work
06:09:16 13 in this regard improved from Monday to Tuesday. I would
06:09:18 14 expect the same amount of improvement from Tuesday to
06:09:21 15 Wednesday.

06:09:23 16 All right. Are there questions from either
06:09:28 17 Plaintiff or Defendant or other issues we need to take up
06:09:30 18 before we recess for the evening?

06:09:34 19 MR. FENSTER: Yes, Your Honor.

06:09:34 20 THE COURT: Go to the podium. Yes, let me hear
06:09:37 21 from you, Mr. Fenster.

06:09:40 22 MR. FENSTER: Your Honor, I would just like to
06:09:42 23 clarify. So during the cross-examination of Mr. Credelle,
06:09:48 24 the Court mentioned that it was not a previously disclosed
06:09:54 25 demonstrative.

06:09:55 1 It is the parties' understanding that --

06:09:57 2 THE COURT: Wait a minute. What was not a

06:09:59 3 previously disclosed demonstrative?

06:10:00 4 MR. FENSTER: I apologize. The report, when

06:10:04 5 Mr. Haslam meant to show the report. The report was

06:10:08 6 improper to show because it was hearsay, not because it was

06:10:11 7 a demonstrative.

06:10:12 8 The parties' understanding is that demonstratives

06:10:16 9 do not need to be -- for cross-examination do not need to

06:10:20 10 be previously disclosed. And so I just wanted to clarify

06:10:22 11 that for the Court.

06:10:24 12 THE COURT: Well, as I think I said on the record,

06:10:26 13 the report is not evidence. The witness's testimony based

06:10:30 14 on the report and supported by the report is evidence.

06:10:33 15 MR. FENSTER: Yes, Your Honor. But one of the

06:10:37 16 Court's comments, I may have misheard, but -- was that you

06:10:42 17 asked Mr. Haslam is this in evidence or a previously

06:10:47 18 disclosed demonstrative.

06:10:48 19 So I just wanted to clarify that cross-examination

06:10:51 20 demonstratives do not need to be previously disclosed in

06:10:55 21 order to show them to the Court.

06:10:57 22 THE COURT: Well, part of any possible confusion

06:11:04 23 may be that everything either side puts on the screen

06:11:08 24 during this trial either has an exhibit number on it or it

06:11:11 25 has a DDX or a PTX demonstrative number on it, and even if

06:11:16 1 it's been disclosed or not disclosed, it's marked.

06:11:20 2 And I saw -- I saw counsel flipping through a
06:11:23 3 document that was not marked as either a demonstrative, it
06:11:26 4 was not marked as an exhibit, and the author of that
06:11:30 5 document was being questioned about it, particularly with
06:11:32 6 regard to drawings and figures that seem to be available
06:11:35 7 through other means that were admitted exhibits,
06:11:40 8 particularly some of them coming from the patents-in-suit.

06:11:42 9 So that's where I questioned why we were doing
06:11:48 10 what we were doing.

06:11:50 11 MR. FENSTER: I understand, Your Honor.

06:11:51 12 So, just to be clear, demonstratives will be
06:11:53 13 marked before being shown on cross-examination --

06:11:56 14 THE COURT: And whether they're disclosed or not
06:11:58 15 is a different matter. And it not being marked is what
06:12:02 16 raised the issue with me.

06:12:03 17 MR. FENSTER: Thank you for the clarification.

06:12:05 18 THE COURT: All right. Mr. Haslam, is the
06:12:06 19 Defendant aware of anything that needs to be taken up
06:12:08 20 before we recess for the evening?

06:12:10 21 MR. HASLAM: No, Your Honor.

06:12:12 22 THE COURT: All right. Counsel, be productive as
06:12:15 23 you meet and confer overnight. And I will see you in the
06:12:17 24 morning.

06:12:18 25 The Court stands in recess until tomorrow morning.

06:12:25 1 COURT SECURITY OFFICER: All rise.
06:12:26 2 (Recess.)
3

4 CERTIFICATION
5

6 I HEREBY CERTIFY that the foregoing is a true and
7 correct transcript from the stenographic notes of the
8 proceedings in the above-entitled matter to the best of my
9 ability.

10
11
12 /S/ Shelly Holmes _____
13 SHELLY HOLMES, CSR, TCRR
FEDERAL OFFICIAL REPORTER

3/2/2021
Date

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